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Diseases in States, 19

Pertaining to the Public Health

UNITED STATES PUBLIC HEALTH SERVICE

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DIVISION OF SANITARY REPORTS AND STATISTICS

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The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PREVALENCE OF DISEASE

PUBLIC HEALTH REPORTS

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PRINCIPAL CAUSES OF DEATH, 1925

The Department of Commerce announces that 1,219,019 deaths occurred in 1925 within the death-registration area of continental United States, representing a death rate of 11.8 per 1,000 population—the same as the rate for 1924.

The death-registration area in 1925 comprised 40 States, the District of Columbia, and 24 cities in nonregistration States, with a total estimated population on July 1 of 103,108,000, or 89.4 per cent of the estimated population of the United States.

The principal decreases in death rates in 1925 from the rates for 1924 were as follows: Measles, from 9 to 2 per 100,000 population; pneumonia (all forms), from 98 to 94; and tuberculosis (all forms), from 90 to 87.

Increases ~~in rates in 1925 were~~ recorded for influenza, from 20 to 30 per 100,000 population; diseases of the heart, from 178 to 186; nephritis, from 90 to 96; and diarrhea and enteritis, under 2 years, from 28 to 32.

The following table shows for the death-registration area in continental United States in 1924 and 1925 the number of deaths and the death rates per 100,000 population from leading causes:

Cause of death	Deaths in the registration area in continental United States			
	Number		Rate per 100,000 estimated population	
	1925	1924	1925	1924
All causes [1]	1,219,019	1,173,990	1,182.3	1,183.5
Typhoid and paratyphoid fever	8,287	6,677	8.0	6.7
Malaria	2,132	2,441	2.1	2.5
Smallpox	700	874	0.7	0.9
Measles	2,404	8,517	2.3	8.6
Scarlet fever	2,782	3,122	2.7	3.1
Whooping cough	6,948	8,188	6.7	8.3
Diphtheria	8,058	9,316	7.8	9.4
Influenza	30,538	19,374	29.6	19.5
Dysentery	3,257	2,946	3.2	3.0
Erysipelas	2,455	2,458	2.4	2.5
Lethargic encephalitis	1,630	1,441	1.6	1.5
Meningococcus meningitis	1,095	964	1.1	1.0

[1] Exclusive of stillbirths.

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[illegible] rates in the registration area (exclusive of Hawaii), registration States, and 68 cities, from accidents caused by automobiles, motor trucks, and commercial motor vehicles, 1921 to 1925

[For each year the total number of deaths is shown regardless of place of accident. For 1925 deaths are also shown where accidents are known to have occurred outside of State or city limits]

Area	Number of deaths						Rate per 100,000 population				
	1925		Total								
	Total	From accidents outside *	1924	1923	1922	1921	1925	1924	1923	1922	1921
Registration area	17,571		15,528	14,411	11,666	10,163	17.0	15.7	14.9	12.5	11.5
Registration States [1]	17,149		15,221	14,157	11,466	9,903	16.9	15.6	14.8	12.5	11.4
Alabama	252	3	(2)	(2)	(2)	(2)	10.1	(2)	(2)	(2)	(2)
California	1,327	2	1,254	1,239	960	876	31.7	32.0	32.6	26.0	24.4
Colorado	146	1	158	157	159	121	14.0	15.7	15.9	16.3	12.6
Connecticut	340	3	277	249	216	220	21.6	18.4	16.9	14.9	15.5
Delaware	37		46	55	24	17	15.5	19.8	23.9	10.5	7.5
Florida	449	4	242	170	122	104	35.5	19.7	16.2	11.9	10.4
Georgia	(3)	(3)	307	259	215	(2)	(3)	10.1	8.6	7.2	(2)
Idaho	56	3	54	51	21	(2)	11.0	11.2	10.8	4.6	(2)
Illinois	1,268	5	1,065	1,031	1,003	887	17.9	15.5	15.2	15.0	13.4
Indiana	509	5	480	433	306	266	16.4	15.8	14.4	10.2	9.0
Iowa	271	3	211	242	(2)	(2)	11.2	8.7	9.8	(2)	(2)
Kansas	240	8	169	217	175	166	13.2	9.4	12.1	9.8	9.3
Kentucky	237	4	197	166	128	105	9.4	8.0	6.7	5.2	4.8
Louisiana	241	2	210	158	104	97	12.7	11.3	8.5	5.7	5.3
Maine	98	1	91	91	79	56	12.5	11.7	11.7	10.2	7.3
Maryland	271	4	246	243	224	177	17.4	16.2	16.1	15.0	12.0
Massachusetts	729	9	685	611	496	523	17.6	16.7	15.2	12.5	13.3
Michigan	955	5	863	738	574	141	22.3	21.2	18.6	14.8	11.6
Minnesota	361	6	356	328	260	216	13.8	14.5	13.1	10.5	8.9
Mississippi	170	4	125	78	60	46	9.5	7.0	4.4	3.4	2.6
Missouri	509	9	449	398	321	276	14.6	13.0	11.6	9.4	8.1
Montana	84		69	49	48	48	12.5	11.0	8.0	8.1	8.3
Nebraska	125	4	113	123	131	104	9.1	8.4	9.2	9.9	7.9
New Hampshire	87	4	61	59	49	38	19.2	13.6	13.2	11.0	8.5
New Jersey	771	4	746	672	543	484	21.4	21.7	19.9	16.4	14.9
New York	2,111	16	1,985	1,930	1,788	1,632	18.9	18.0	17.8	16.7	15.4
North Carolina	376	1	328	258	169	139	13.4	12.0	9.6	6.4	5.3
North Dakota	59	1	45	(2)	(2)	(2)	9.2	7.0	(2)	(2)	(2)
Ohio	1,285	8	1,024	1,078	818	734	19.9	16.5	17.6	13.6	12.4
Oregon	144	1	144	120	113	103	16.7	17.3	14.6	13.9	12.9
Pennsylvania	1,576	12	1,535	1,592	1,260	1,060	16.6	16.7	17.5	14.0	11.9
Rhode Island	133	5	113	97	93	83	19.6	16.9	15.5	15.0	13.5
South Carolina	179		167	119	76	74	9.9	9.5	6.8	4.4	4.8
Tennessee	278	17	232	171	160	134	11.4	9.6	7.1	6.7	5.7
Utah	89	3	81	60	59	53	17.7	16.7	12.6	12.6	11.5
Vermont	56	1	48	46	39	23	15.9	13.6	13.1	11.1	6.5
Virginia	271	8	240	200	137	140	10.9	9.9	8.3	5.8	6.0
Washington	299	4	265	240	173	202	10.8	18.2	16.7	12.3	14.5
West Virginia	208	2	(2)	(2)	(2)	(2)	12.7	(2)	(2)	(2)	(2)
Wisconsin	397	2	363	292	271	205	13.0	13.1	10.7	10.0	7.7
Wyoming	67		59	51	28	(2)	20.8	27.2	21.1	13.5	(2)
Total, 66 cities †	6,358	746	5,842	5,590	4,875	4,415	21.2	19.8	19.2	17.1	15.8
Akron	60	10	39	40	25	31	(4)	(4)	(4)	12.0	14.9
Albany	35	17	28	27	21	31	29.7	23.9	23.0	18.1	26.9
Atlanta	65	19	53	55	54	38	(4)	(4)	24.7	24.7	18.3
Baltimore	158	15	120	131	130	100	19.8	16.4	16.9	17.1	13.3
Birmingham	51	13	55	49	31	42	24.8	27.4	25.0	16.9	22.6
Boston	154	15	143	133	129	103	19.8	18.4	17.3	16.9	13.6
Bridgeport	26	8	21	23	28	28	(4)	(4)	(4)	19.5	19.5
Buffalo	119	8	112	137	106	81	22.1	21.0	25.5	20.1	15.6
Cambridge	22	3	27	28	16	19	18.4	22.8	25.1	14.4	17.2
Camden	43	22	36	44	34	27	33.3	28.5	35.4	27.9	22.6

1 Including District of Columbia.
2 Not added to the registration area until a later date.
3 State registration law declared unconstitutional; State excluded from area.
4 Population not estimated.
* As the place of accident was not always reported, the figures given as outside the State or city limits are doubtless too small in some cases. Therefore, the figures in the second column must be regarded merely as minimum numbers.
† Fort Worth and Des Moines figures not included as data are not available for the 5 years.

Deaths and death rates in the registration area (exclusive of Hawaii), registration States, and 68 cities, from accidents caused by automobiles, motor trucks, and commercial motor vehicles, 1921 to 1925—Continued

Area	Number of deaths						Rate per 100,000 population				
	1925		Total								
	Total	From accidents outside	1924	1923	1922	1921	1925	1924	1923	1922	1921
Chicago	645	19	560	589	623	569	21.5	19.0	20.4	22.0	20.5
Cincinnati	115	8	85	102	76	79	28.1	20.8	25.1	18.8	19.6
Cleveland	231	13	220	203	142	148	24.7	24.1	22.8	16.6	17.8
Columbus	71	8	59	58	37	43	25.4	22.0	22.2	14.5	17.4
Dallas	59	9	36	34	27	27	30.4	19.2	18.7	15.7	16.3
Dayton	44	20	26	27	27	15	25.4	15.4	16.3	16.7	9.5
Denver	37	11	40	45	56	43	13.2	14.5	16.5	20.9	16.3
Des Moines	23	1	17	18	(2)	(2)	16.3	12.1	12.8	(2)	(2)
Detroit	346	5	305	252	176	133	27.8	25.5	(4)	17.7	13.4
Fall River	17	5	16	22	13	13	13.2	12.5	18.2	10.8	10.8
Fort Worth	32	11	27	9	16	(2)	20.6	18.2	6.3	13.2	(2)
Grand Rapids	45	10	31	27	23	15	29.2	20.9	18.5	16.0	10.6
Hartford	53	23	33	40	31	31	33.1	21.1	26.3	22.5	22.5
Houston	31	7	31	25	27	25	(4)	19.4	10.1	18.0	17.3
Indianapolis	78	12	71	53	47	40	21.7	20.2	15.5	14.0	12.3
Jersey City	64	--------	56	37	36	36	20.3	17.9	12.0	11.8	11.9
Kansas City, Kans	27	8	18	12	18	12	23.3	15.6	10.4	15.8	11.6
Kansas City, Mo	87	10	87	86	63	67	23.7	24.2	24.4	18.3	19.9
Los Angeles	258	47	267	224	187	165	(4)	(4)	(4)	29.5	27.1
Louisville	64	5	58	66	42	35	21.2	19.8	25.6	16.4	14.8
Lowell	26	7	23	18	6	21	23.6	20.8	15.6	5.2	18.5
Memphis	52	24	40	46	42	25	29.7	23.2	27.0	25.0	15.1
Milwaukee	102	13	83	62	65	52	20.0	16.8	12.8	13.6	11.1
Minneapolis	76	16	86	60	71	49	17.9	20.6	14.7	17.7	12.5
Nashville	38	12	34	28	20	24	27.9	27.5	22.8	16.6	19.7
New Bedford	18	1	13	8	21	9	15.1	10.9	6.2	16.5	7.2
New Haven	40	16	48	28	33	21	22.3	27.3	16.2	19.4	12.6
New Orleans	78	13	84	68	46	43	18.8	20.5	16.8	11.5	10.9
New York	1,060	6	1,000	964	896	885	18.0	17.2	16.3	15.3	15.4
Bronx Borough	117	(5)	122	129	81	106	13.4	14.4	15.3	10.0	13.6
Brooklyn Borough	341	(5)	327	279	266	279	15.5	15.1	12.9	12.6	13.4
Manhattan Borough	484	(5)	439	474	463	420	24.9	21.9	20.9	20.4	18.4
Queens Borough	102	(5)	90	66	68	65	14.3	13.4	12.3	13.2	13.1
Richmond Borough	16	(5)	22	16	18	15	11.6	16.3	12.5	14.5	12.4
Newark, N. J	110	5	104	107	81	68	24.3	23.3	24.4	18.8	16.0
Norfolk	24	2	16	13	11	22	14.2	(4)	8.2	8.8	18.1
Oakland	44	5	49	50	41	35	17.3	19.8	20.8	17.6	15.5
Omaha	35	4	29	40	24	23	16.5	13.9	19.6	12.0	11.7
Paterson	41	9	49	39	34	32	28.9	31.8	27.9	24.5	23.3
Philadelphia	296	2	263	294	267	190	15.0	13.5	15.3	14.1	10.2
Pittsburgh	166	25	186	146	123	107	26.3	29.7	23.5	20.2	17.8
Portland, Oreg	42	10	41	39	40	38	(4)	14.7	14.3	14.9	14.3
Providence	79	25	58	52	51	30	29.5	22.0	21.5	21.2	16.3
Reading	19	8	24	27	13	16	16.8	21.5	24.3	11.8	14.7
Richmond	41	17	33	26	20	19	22.0	18.0	14.4	11.2	10.8
Rochester	54	14	48	44	52	42	17.0	15.3	13.8	16.7	13.8
St. Louis	201	11	197	168	134	119	24.5	24.2	20.9	16.9	15.1
St. Paul	42	2	55	59	36	34	17.1	22.5	24.4	15.0	14.3
Salt Lake City	42	14	34	20	24	18	32.1	26.4	15.8	19.4	14.8
San Antonio	39	14	22	30	28	33	19.7	11.5	16.2	15.7	19.3
San Francisco	105	13	113	107	118	94	18.8	20.6	19.9	22.3	18.1
Scranton	33	6	24	41	29	25	23.2	17.0	29.2	20.7	18.0
Seattle	66	7	53	55	44	44	(4)	(4)	(4)	13.9	14.0
Spokane	21	11	22	15	10	19	19.3	21.0	14.3	9.6	18.2
Springfield, Mass	21	10	27	23	17	23	14.8	19.2	15.9	12.1	16.9
Syracuse	29	13	41	43	36	34	15.9	22.7	23.3	19.9	19.2
Toledo	67	20	46	63	45	37	23.3	16.4	23.4	17.3	14.6
Trenton	39	18	34	36	27	26	29.5	26.2	28.3	21.6	21.2
Washington, D. C	88	16	108	86	64	53	17.1	22.2	18.1	14.6	12.1
Wilmington, Del	21	5	29	29	15	10	17.2	24.2	24.6	13.0	8.8
Worcester	40	8	29	33	26	37	21.0	15.3	17.2	13.8	20.0
Yonkers	15	--------	16	17	13	17	13.2	14.4	13.8	12.3	16.5
Youngstown	43	7	39	37	27	36	26.9	25.1	24.6	20.4	25.7

[2] Not added to the registration area until a later date.
[4] Population not estimated.
[5] Not separately tabulated.

The relation of water to public health, and the responsibility of water works operators. Dr. L. H. Martin, director of public health and welfare, Fort Worth, Tex. Proceedings of the Eighth Texas Water Works Short School, Texas Section, January 18–23, 1926, pp. 9–15. (Abstract by V. M. Ehlers.)

Water has always been the major problem in the control of soil pollution diseases, and the concern of men for a pure water supply dates back beyond the dawn of history. The fall of Rome marked the beginning of a retrogression in sanitation which continued until the middle of the nineteenth century, when insanitary conditions were revealed by Sir Edwin Chadwick and the epidemic of cholera led to a revival in sanitation under Sir John Simon.

The work of Jenner, Pfeiffer, Kolle, and Pasteur demonstrated the germ theory of disease transmission which marked the beginning of the new era in public health and enabled demonstration of the fact that soil pollution diseases could be transmitted by water.

One of the most important things affecting health in homes, schools, or neighborhoods is a safe and adequate water supply for drinking purposes, for cleaning and preparing food, and for cleanliness about the home and in the community enterprises, such as street cleaning. The importance of these two factors, safety and adequacy, increases as population concentrates. Large cities, such as New York, have secured such water supplies only by the expenditure of large sums in bringing water great distances.

The safety of the supply constitutes a great responsibility on the municipality and on the operator of the plant, for on both rest the lives of many people. In the prolonged absence of disease, the public becomes oblivious of the danger, which should be pointed out by those who realize it, namely, the operators. The operator should, therefore, prepare himself to accept these obligations by learning his work thoroughly.

Malaria-bearing mosquitoes live because of man's own carelessness. William B. Herms. The Nation's Health, vol. 8, No. 8, August, 1926, pp. 539–541. (Abstract by L. D. Fricks.)

A brief outline of the principles of malaria control as deduced from the life history of the malaria plasmodium and the mosquito carrier. The measures commonly employed in the control of malaria are briefly reviewed. The article is written in popular style, no doubt with the object of educating its readers in malaria control methods and impressing them with the fact that malaria can be controlled in many situations with a relatively small expenditure of effort and care. The broad statement that "malaria-bearing mosquitoes live because of man's own carelessness" does not appear in the article itself and can hardly be inferred from the text, but it is pointed out that

the control of *Anopheles* is frequently feasible and is the one measure which is absolutely final in its results. We can not have malaria transmission in the absence of anopheline mosquitoes.

Impounded waters and malaria. T. H. D. Griffitts, United States Public Health Service, Southern Medical Journal, vol. 19, No. 5. May, 1926, pp. 367–370. (Abstract by L. D. Fricks.)

A brief history of hydroelectric power development and the impounding of water for this purpose in the southern United States is given in this paper. The United States Public Health Service undertook to study the relation which these artificial impounded water projects bear to the prevalence of malaria. These impounded water studies extended over a period of 11 years, and the general principles involved in the control of malaria around them have been determined. Regulations based on these general principles have been suggested and adopted by the health officials of several Southern States.

Progress on seal of safety campaign in Pennsylvania. H. E. Moses, assistant chief engineer, Pennsylvania State Department of Health, Fifth Annual Report of Ohio Conference on Water Purification, October 15–16, 1925, p. 83. (Abstract by I. W. Mendelsohn.)

A description is given of the investigation of semipublic water supplies along the main highways in Pennsylvania by the bureau of engineering of the State health department. The work was started in 1924, and from July 1 to September 15, over 800 supplies were inspected, of which approximately 50 per cent were approved as safe drinking water. The work in 1924 was carried out by one sanitary engineer in an automobile and by a traveling laboratory with a bacteriologist and a driver. In 1925 the work was done by the district engineers and their assistants (14 men, all told) on part time, with two traveling laboratories. Nearly 3,000 semipublic water supplies were visited, and about 50 per cent were approved.

Comparison of B. coli content in raw and filtered waters in Ohio. F. H. Waring, chief engineer, Ohio State Department of Health. Fifth Annual Report Ohio Conference on Water Purification, October 15–16, 1925, pp. 76–80. (Abstract by I. W. Mendelsohn.)

This paper shows by comparison of the *B. coli* content for 1924 the extent of the pollution of the surface waters used by 31 water purification plants in Ohio and indicates how the plants are functioning in the production of safe waters. Tables with yearly averages for *B. coli* content of the water are given.

The results show—(1) 17 filtration plants have to treat raw waters in which the *B. coli* content exceeds the tentative limit of 500 *B. coli* per 100 cubic centimeters fixed by the International Boundary Commission; (2) as a whole, the filtered waters before chlorination

are of good sanitary quality; (3) after chlorination, all the plants produce a water with *B. coli* content per 100 cubic centimeters of less than one.

The study of the plant data showed inaccuracies and mistakes in the reporting of the results due to faulty technique and to inaccurate methods of computation.

Struggles of Small Town with Large Sewage Problem. Frederic Bass. Engineering & Contracting, vol. 97, No. 9, August 26, 1926, pp. 339–342. (Abstract by H. B. Foote.)

This article outlines the problem confronting the city of Austin, Minn., with a population of approximately 12,000 people, of which 2,000 were employees of the Hormel Packing Plant, the chief industry. The problem was to reduce the burden on the Cedar River, a stream with wide fluctuations in flow.

Agitation for remedying the conditions started in 1919, and the plant was placed in operation in December, 1925. Throughout the intervening period various types of plants were recommended by various investigators. One significant feature of the situation was the position taken by the Minnesota State Board of Health, which was without authority to refuse a permit to build a plant which would probably do the required work while it was convinced that equal results could be obtained at less cost. A plant to treat the sewage by direct oxidation was at one time recommended but was rejected.

The treating plant designed by the author and built by the city consists of two reversible-flow Imhoff tanks, each 87 by 26¼ feet in plan and 27½ feet deep below the water level, with 30,000 cubic feet of sludge storage and an automatic siphon; a sprinkling filter 229 by 178 feet in plan, 7⅝ to 8⅔ feet deep, filled with a screened broken stone, 1½ to 3 inches in size, and properly fitted with distribution piping, sprinklers, and underdrains; and final settling tank, 32 feet in diameter and 7⅝ feet deep, fitted with a Dorr clarifier. The sludge from this latter tank is pumped to the Imhoff tanks for retreatment. These structures are all housed to prevent freezing.

The final sludge is drawn off to a sludge drying bed 160 by 100 feet in area and 2 feet deep. Drainage from this as well as the overflow from the final settling tank is carried to the river. The final cost was $220,000.

Do certain water supplies disfigure teeth of children? (Further comments by water-works men on the article by Doctor McKay on this subject.) Water Works Engineering, vol. 79, No. 13, July 1, 1926, p. 864. (Abstract by R. C. Beckett.)

Discussions by A. G. Christie, B. S. Coleman, Almon L. Fales, H. F. Ferguson, D. K. French, and Stephen DeM. Gage.

Skepticism is the chief ingredient of most of the comments, with less likelihood of water being the causative agent of decay, but

rather nutrition and other factors working chiefly in the early life of the persons affected. More detailed data on the causes as well as more complete analysis of the water used are desired by most of the commentators.

Standard methods of milk analysis bacteriological methods. (Report of the referee for the bacteriological examination of milk based on a questionnaire sent to laboratories using these methods, laboratory section, American Public Health Association.) American Journal of Public Health, vol. 16, No. 8, August, 1926, pp. 811–818. (Abstract by C. E. Smith.)

During the summer and fall of 1925 the referee on bacteriological methods of milk analysis sent a questionnaire to all the State or provincial, county, and municipal milk control laboratories of the United States and Canada that could be located at the time. The same questionnaire was sent also to laboratories maintained by milk dealers, to commercial laboratories doing milk-control work, and to a selected list of research workers interested in analytical methods.

The result of this questionnaire has been to show that while there is no general demand for radical changes in the present report, there are many details of the agar-plating technique which are not satisfactorily standardized and many differences in opinion regarding the best procedure to follow.

It is recommended that greater emphasis be placed on the necessity for stirring cans of milk throughly before taking samples from them with a "thief." It is well known that the bacteria rise with the cream so that the top milk contains more of them than does the skim milk.

Perhaps the most important need is for a better standardization of the composition and reaction of the nutrient medium. To meet this need, it is recommended that there be a closer standardization of the peptone and meat extract in the fifth edition of the Milk Report. By using standardized products with constant public-health values, the adjustment of reaction should become merely the routine addition of the definite amount of normal NaOH per liter needed to bring the final product to the reaction desired. Assurance has also been given that the materials from which these products are made will not be changed without notification. It is also recommended that dehydrated media be more specifically approved where laboratories wish to use it.

It is believed that greater uniformity of technique will be brought about by a standardization of 1 cc. pipettes, and dilution bottles and the recommendation of satisfactory types of closure for sample and dilution bottles. It is not believed wise, at the present time, to introduce any changes in the standard agar-plate technique that would tend to produce either a general increase or decrease in the counts obtained.

Inasmuch as several laboratories continue the routine examination of centrifugal milk sediments, it is desirable to reprint the directions for the Stewart-Slack technique as given in the first edition of the Milk Report, now out of print.

It is recommended that the practice of labeling certain methods as "official" and others as "provisional" be discontinued in the fifth edition. The standard agar-plate technique is used practically universally by public-health control laboratories as a means of making bacterial counts of milk as delivered to the consumer and has proved its value in this field. The other techniques given have their use and purpose which are sufficiently indicated in the text.

A bacteriologic survey of cows in a certified dairy. Naomi Stark. Journal of Infectious Diseases, vol. 39, No. 2, August, 1926, pp. 114–121. (Abstract by C. T. Butterfield.)

A description is given of a bacteriological survey made on the cows of a certified dairy to determine whether or not an epidemic of infectious mastitis were present, and if so to eliminate the diseased animals. No true epidemic was found, but a number of infected animals were separated from the herd. A description of the dairy and laboratory procedures is included. A review of the literature on the bacteriology of the udders of healthy cows is also given. The author concludes that a bacteriological investigation of individual cows in certified dairies is an important aid in the production of milk with low bacterial content.

To encourage clean milk production. Anon. The Medical Officer, vol. 36, No. 18, October 30, 1926, pp. 204–205.

"For some years Mr. J. A. Dixon, M. R. C. V. S., the veterinary inspector on the staff of the Leeds city health department, has kept records of his inspections of the farms, cows, and cowsheds within the city. A year or two ago a system of marking was adopted by which each farmer was credited with so many marks for the condition of his cows and cowsheds, the cleanliness of his utensils, and the method of production. It was but a short step from that to the holding of what, for want of a better term, has been called a 'Clean Milk' Competition—it was not a competition in the real sense of the term, inasmuch as the farmer had no choice as to whether he took part in it or not. The competition was launched on the first of January, 1925, and continued throughout the year.

"All the farms were visited once each quarter by the veterinary inspector. The veterinary inspector's visit was followed up by a visit from the inspector of dairies and cowsheds, who saw the cows milked, observed the methods employed, and took samples of the milk from the churns at the completion of milking and just before

despatch to the retailers. One sample measuring a quart was filtered through a special apparatus designed for the purpose, the Tustmun sediment filter, which showed on a piece of white lint the amount of visible dirt present in the shape of dung, straw, etc. The second sample of about a half pint was placed in an ice box and conveyed to the laboratory at the public health department, where it was examined for (*a*) keeping properties; (*b*) the number of bacteria of all kinds present in 1 cc.; (*c*) the number of intestinal bacteria or *B. coli.* Marks were given in accordance with the results of the tests, which were added to the total obtained at the farm. A summary shows—Dairies obtaining 90 per cent and over, 3; obtaining 80 per cent and less than 90 per cent, 10; obtaining 75 per cent and less than 80 per cent, 17; obtaining 60 per cent and less than 75 per cent, 92; obtaining less than 60 per cent, 5."

A table showing improvement during each quarter and copy of inspection sheet used are ncluded.

A report of a milk-borne outbreak of typhoid fever. W. T. Eakins, Public Health News, New Jersey State Department of Health, vol. 11, Nos. 3–9, July–August, 1926, pp. 194–202. (Abstract by C. E. Smith.)

Six cases of typhoid fever were reported from Westfield, N. J., from March 16 to April 18, 1926. Water from the public supply and grade "A" raw milk from the dairy of a local distributor were the only items common to the epidemiologic histories of all the cases. Raw milk was the suspected vector of infection and pasteurization was required. Widal tests of dairy workers and specimens of stool and urine from them were reported negative for typhoid by the laboratory of the State department of health. A former employee of the dairy gave a history of suspicious illness. Evidence indicated that the illness was probably typhoid fever and that the man was source of infection of outbreak. This man was employed at the dairy during the period that the epidemiologic evidence pointed to the infection of the milk. An insanitary privy was suspected to be the probable source of infection. A pit dug in the ground beneath the seats received excrement. This pit was not fly-tight at the time of inspection and poorly fitted covers on the two seats were not closed. The author concludes that this outbreak demonstrates the fact that even though a dairyman has complied with practically all the requirements of the local health authorities of the communities in which his product is sold, danger of the transmission of disease through milk is not always eliminated; and unless the milk is pasteurized as an added safeguard, it should not be considered as safe milk.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Health work under local school board not enjoined.—(Texas Court of Civil Appeals; City of Dallas et al. *v.* Mosely et al., 286 S. W. 497; decided June 12, 1926.) The board of education of the city of Dallas established in connection with the public schools a department looking to the promotion of the health of the pupils. Physicians and nurses were employed, voluntary physical examinations provided for, etc., all with the purpose of improving the physical and mental well-being of the school children. This work was sought to be restrained by certain resident taxpayers in the city of Dallas, but the court denied an injunction, stating as follows:

> We are of the opinion that the school board was acting under an authorized legal discretion when it organized and installed the health department for the purposes for which same was organized, and that it is being conducted for a lawful and commendable purpose, and has increased the efficiency of the school system of the city of Dallas.

Death from anthrax held compensable under workmen's compensation act.—(Texas Court of Civil Appeals; Houston Packing Co. et al. *v.* Mason, 286 S. W. 862; decided June 15, 1926.) A packing-company employee, whose work was skinning cattle, contracted anthrax in the course of his employment and died therefrom. In a suit by the widow to recover compensation under the workmen's compensation act, it was held that the contracting of such disease by the employee was an injury and, therefore, compensable.

Statutory provisions for the eradication of bovine tuberculosis held valid.—(Iowa Supreme Court; Fevold et al. *v.* Board of Supervisors of Webster County et al., 210 N. W. 139; decided September 21, 1926.) The validity of various statutory provisions, having for their object the eradication of bovine tuberculosis, was attacked in an action in which it was sought to restrain certain officials from proceeding to enforce the said provisions. The statutes attacked dealt with the compulsory tuberculin testing of breeding cattle in accredited areas, the levying of a tax within counties for the creation of a tuberculosis eradication fund, and other related subjects. The provisions, the validity of which was questioned, were upheld and the injunctive relief asked for was denied.

Act authorizing sewer districts in St. Louis County, Mo., held unconstitutional.—(Missouri Supreme Court; State ex inf. Gentry, Atty. Gen., *v.* Armstrong et al., Supervisors, etc., 286 S. W. 705; decided July 3, 1926.) A 1925 statute authorized the creation and organization of sewer districts "within the limits of any county adjoining a city now or hereafter having a population of 700,000 inhabitants or more." It was conceded that the act applied only to St. Louis

County. Pursuant to constitutional authority the city of St. Louis was in a class by itself, in that it was wholly without the confines of any county. Said city was surrounded by the county of St. Louis. In a quo warranto proceeding to test the validity of the sewer district act, the supreme court pointed out that the statute could not "apply to a county having within its boundaries a city of 700,000 or more inhabitants, because such city would be a part of the county, and therefore the county could not adjoin the city, for the simple reason that the city would be a part and parcel of the county. * * * It would require a constitutional provision authorizing the separation of the city from the rural portion of the county, as in the case of the city of St. Louis."

By a provision of the constitution no local or special law could be legally passed where a general law could be made applicable. In this connection the court stated:

> We are not impressed that the conditions are so different [in St. Louis County] from other rural communities in the State as to require a special act, but if they are, then the legislation must proceed under section 54 of article 4 of the constitution. Our view is that a general law could be made to cover the situation there as well as similar situations in other counties. At least a reasonable classification of counties could be made, which is not done by the act of 1925.

The court held that the law was void because violative of the constitution.

THE NOTIFIABLE DISEASES

PREVALENCE DURING 1925 IN STATES

The tables which appear on the following pages have been compiled from data furnished by the health officers of the several States, the District of Columbia, and insular possessions. The data for syphilis and gonorrhea were furnished by the Division of Venereal Diseases of the Public Health Service.

The following is a list of the diseases included:

Anthrax in man.
Cerebrospinal meningitis.
Chicken pox.
Dengue.
Diphtheria.
Gonorrhea.
Influenza.
Malaria.
Measles.
Mumps.
Pellagra.
Pneumonia (all forms).
Poliomyelitis.
Rabies in animals.
Rabies in man.
Rocky Mountain spotted fever.
Scarlet fever.
Septic sore throat.
Smallpox.
Syphilis.
Tuberculosis (all forms and pulmonary).
Typhoid fever.
Typhus fever.
Whooping cough.

The following table shows the States (including the District of Columbia and insular possessions) for which morbidity and mortality data were received:

Morbidity	Mortality	Morbidity	Mortality
Alabama	Alabama.	Nebraska	Nebraska.
Arizona	Arizona.	Nevada	Nevada.
Arkansas	Arkansas.	New Hampshire	New Hampshire.
California	California.	New Jersey	New Jersey.
Colorado	Colorado.	New Mexico	
Connecticut	Connecticut.	New York	New York.
Delaware	Delaware.	North Carolina	North Carolina.
District of Columbia	District of Columbia.	North Dakota	North Dakota.
Florida	Florida.	Ohio	Ohio.
Georgia	Georgia.[1]	Oklahoma	Oklahoma.
Idaho	Idaho.	Oregon	Oregon.
Illinois	Illinois.	Pennsylvania	Pennsylvania.
Indiana	Indiana.	Rhode Island	Rhode Island.
Iowa	Iowa.	South Dakota	South Dakota.
Kansas	Kansas.	Tennessee	Tennessee.
Kentucky	Kentucky.	Texas	Texas.
Louisiana	Louisiana.	Vermont	Vermont.
Maine	Maine.	Virginia	Virginia.
Maryland	Maryland.	Washington	Washington.
Massachusetts	Massachusetts.	West Virginia	West Virginia.
Michigan	Michigan.	Wisconsin	Wisconsin.
Minnesota	Minnesota.	Wyoming	Wyoming.
Mississippi	Mississippi.[1]	Hawaii Territory	Hawaii Territory.
Missouri	Missouri.	Philippine Islands	Philippine Islands.
Montana	Montana.	Porto Rico	Porto Rico.

[1] Data not given by months.

The populations given in the tables and used in computing case and death rates were estimated as of July 1, 1925, unless otherwise indicated.

For most of the diseases four tables are given: (1) Estimated expectancy, or average, (2) morbidity, (3) mortality, (4) rates.

The estimated expectancy, given in the tables for some of the diseases, is the result of an attempt to ascertain from the experience of recent years how many cases of the disease under consideration might be expected in 1925. In most instances the estimated expectancy is the median number of cases reported by the State for the years 1918 to 1924, inclusive. When several epidemics have occurred during these years, or when for other reasons the median is not satisfactory, epidemic years are excluded, and the estimated expectancy is the mean of the number of cases reported for the non-epidemic years. The aim has been to ascertain how many cases of each disease may reasonably be expected in the absence of epidemics.

The column headed "Number of years" shows the number of years for which data are available for each State.

In comparing the figures for 1925 with the estimated expectancy, averages or with reports for preceding years, it should be borne in mind that there has been a gradual improvement in the reporting of communicable diseases during the last few years. An increase in the number of cases reported may be due to better reporting of the particular disease rather than to an increase in the number of cases existing.

A relatively large number of reported cases of a communicable disease, as indicated by a high case rate (and more especially when accompanied by a relatively small number of deaths, as indicated by a low fatality rate), usually means that the health department of that State is active and that the cases of the disease are being well reported by the practicing physicians. It does not necessarily mean that the disease is more prevalent in that State than in other States. A high fatality rate may mean that the disease was unusually virulent in a State, that the physicians did not treat the disease in that State with the success usual elsewhere, or that the practicing physicians did not report all of their cases. On the other hand, an unusually low fatality rate may be due to the fact that the disease in the State was unusually mild, that the physicians treated it with unusual success, that the practicing physicians reported their cases satisfactorily, or that the registration of deaths was incomplete, or the assignment of the causes of death inaccurate.

In some instances comparatively large numbers of cases of diseases reported in certain States may be due to the system of reporting rather than to unusual prevalence of the diseases. For instance, in Mississippi, physicians report some diseases monthly to the State health officer, giving the number of cases occurring in their practice during the month. This method of reporting probably is responsible, in part, at least, for the comparatively large numbers of cases of certain diseases reported in Mississippi.

Tabulations of reported cases and deaths from communicable diseases, similar to the tables here presented, have been issued by the United States Public Health Service for the years 1912 to 1924, inclusive (reprints numbered 163, 208, 298, 345, 426, 505, 551, 643, 681, 791, 879, 974, and 1056).

SUMMARY

CHICKEN POX

47 States:[1]	
Cases reported, 1925 (population 111,723,000)	170, 500
Average, years 1922–1924	168, 271
Cases per 1,000 inhabitants, 1925	1. 53
Cases per 1,000 inhabitants, average	1. 54
44 States:[1]	
Deaths registered, 1925 (population 100,235,000)	98
Deaths per 1,000 inhabitants, 1925	0. 00
Cases reported for each death registered, 1925	1, 490. 84

DIPHTHERIA

47 States:[1]	
Cases reported, 1925 (population 111,723,000)	95, 100
Estimated expectancy, based on years 1918–1924	140, 642
Cases per 1,000 inhabitants, 1925	0. 85
Cases per 1,000 inhabitants, estimated expectancy	1. 33

[1] The District of Columbia is also included.

46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	8,455
Deaths per 1,000 inhabitants, 1925	0.08
Deaths per 100 cases, 1925	8.91

GONORRHEA

39 States:	
Cases reported, 1925 (population 101,875,000)	166,165
Cases per 1,000 inhabitants, 1925	1.63

INFLUENZA

46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	31,939
Deaths per 1,000 inhabitants, 1925	0.29

MEASLES

47 States:[1]	
Cases reported, 1925 (population 111,723,000)	225,027
Estimated expectancy, based on years 1918–1924	306,678
Cases per 1,000 inhabitants, 1925	2.01
Cases per 1,000 inhabitants, estimated expectancy	2.89
46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	2,309
Deaths per 1,000 inhabitants, 1925	0.02
Deaths per 100 cases, 1925	1.03

MUMPS

42 States:	
Cases reported, 1925 (population 98,346,000)	113,755
Cases per 1,000 inhabitants, 1925	1.16
41 States:	
Cases reported, 1925 (population 95,921,000)	113,712
Average, years 1922–1924	75,246
Cases per 1,000 inhabitants, 1925	1.19
Cases per 1,000 inhabitants, average	0.80
43 States:	
Deaths registered, 1925 (population 103,100,000)	107
Deaths per 1,000 inhabitants, 1925	0.00
40 States:	
Deaths registered, 1925 (population 96,176,000)	97
Deaths per 1,000 inhabitants, 1925	0.00
Cases reported for each death registered, 1925	1,019.46

PELLAGRA

16 States:[1]	
Cases reported, 1925 (population 44,529,000)	11,695
37 States:[1]	
Deaths registered, 1925 (population 97,706,000)	3,907
Deaths per 1,000 inhabitants, 1925	0.04

PNEUMONIA

45 States:[1]	
Deaths registered, 1925 (population 110,697,000)	105,101
Deaths per 1,000 inhabitants, 1925	0.95

[1] The District of Columbia is also included.

POLIOMYELITIS

44 States:[1]	
Cases reported, 1925 (population 105,221,000)	5, 926
Cases per 1,000 inhabitants, 1925	0. 056
42 States:[1]	
Cases reported, 1925 (population 100,494,000)	5, 806
Estimated expectancy, based on years 1918–1924	2, 375
Cases per 1,000 inhabitants, 1925	0. 058
Cases per 1,000 inhabitants, estimated expectancy	0. 025
46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	1, 582
Deaths per 1,000 inhabitants, 1925	0. 014
43 States:[1]	
Deaths registered, 1925 (population 104,842,000)	1, 507
Deaths per 1,000 inhabitants, 1925	0. 014
Deaths per 100 cases, 1925	25. 482

SCARLET FEVER

47 States:[1]	
Cases reported, 1925 (population 111,723,000)	184, 521
Estimated expectancy, based on years 1918–1924	151, 929
Cases per 1,000 inhabitants, 1925	1. 65
Cases per 1,000 inhabitants, estimated expectancy	1. 43
46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	2, 722
Deaths per 1,000 inhabitants, 1925	0. 02
Deaths per 100 cases, 1925	1. 48

SMALLPOX

47 States:[1]	
Cases reported, 1925 (population 111,723,000)	39, 572
Estimated expectancy, based on years 1918–1924	40, 277
Cases per 1,000 inhabitants, 1925	0. 35
Cases per 1,000 inhabitants, estimated expectancy	0. 38
46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	722
Deaths per 1,000 inhabitants, 1925	0. 01
Deaths per 100 cases 1925	1. 83

SYPHILIS

39 States:	
Cases reported, 1925 (population 101,875,000)	206, 566
Cases per 1,000 inhabitants, 1925	2. 03

TYPHOID FEVER

46 States:[1]	
Cases reported, 1925 (population 109,217,000)	46, 227
Estimated expectancy, based on years 1918–1924	37, 193
Cases per 1,000 inhabitants, 1925	0. 42
Cases per 1,000 inhabitants, estimated expectancy	0. 36
46 States:[1]	
Deaths registered, 1925 (population 111,344,000)	9, 726
Deaths per 1,000 inhabitants, 1925	0. 09

[1] The District of Columbia is also included.

45 States:[1]
- Deaths registered, 1925 (population 108,838,000) 9, 646
- Deaths per 1,000 inhabitants, 1925 .... 0. 09
- Deaths per 100 cases, 1925 .... 21. 05

WHOOPING COUGH

47 States:[1]
- Cases reported, 1925 (population 111,723,000) 152, 003
- Average, years 1922–1924 .... 159, 892
- Cases per 1,000 inhabitants, 1925 .... 1. 36
- Cases per 1,000 inhabitants, average 1. 47

46 States:[1]
- Deaths registered, 1925 (population 111,344,000) 6, 866
- Deaths per 1,000 inhabitants, 1925 .... 0. 06
- Cases reported for each death registered, 1925 .... 22. 07

Anthrax in man—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California						1	1			2			4
Colorado			1	1									2
Connecticut	1									2	1		4
Delaware	1	1		1								1	4
Illinois	2			1						1			4
Indiana					1								1
Louisiana	1		1				1	8					11
Massachusetts	3	1	1										5
Minnesota								2					2
Mississippi		7		1	2	4	2	7	1		1		25
New Jersey		6	3	3	1		1		4			1	19
New Mexico					1								1
New York		1	1		1	2		2			2		9
Oklahoma				1		1							2
Pennsylvania	2			2	2	1	2		1			2	12
South Dakota												1	1
Tennessee									1				1
Texas	1	1											2
Washington					1								1

Anthrax in man—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Arkansas											1	1	2
California						1				1			2
Delaware				1								1	2
Illinois	1												1
Indiana						1							1
Louisiana							2			1			3
Maine										1			1
Massachusetts		1											1
Missouri						1							1
New Jersey										1			1
New York					1	1							2
South Dakota												1	1
Tennessee												1	1
Texas								1					1
Washington					1								1

[1] The District of Columbia is also included.

Cerebrospinal meningitis [1]*—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive*

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	4	7	10	9	7	5	5	5	3	4	3	4	5	67
Arizona	3	1		1										2
Arkansas	5	1	1	1	1	2	1	1	1	1		1	2	13
California	7	12	12	13	15	11	10	13	10	10	10	9	8	133
Connecticut	7	6	6	8	8	8	8	8	6	6	5	5	5	79
Delaware	4		1			1		1	1	1				5
District of Columbia	7	1	1	1	1			1			1	1	1	8
Florida	5	2	2	2	2	2	2	1	1	1	1	1	2	19
Illinois	7	19	22	25	12	15	13	11	11	11	11	11	9	170
Indiana	7	4	6	5	5	4	3	2	4	4	4	2	4	47
Iowa	3	2	1	3	2	1	2	2	4	4	2	3	1	27
Kansas	5	6	5	7	4	5	2	3	6	2	2	1	4	47
Kentucky	1	6	6	3	3	3	4	4	5	6	8	7	6	61
Louisiana	7	7	6	9	7	3	4	2	3	3	3	4	5	56
Maine	5	1	1	2	2	1		1	1	2	1	1	2	15
Maryland	7	5	4	3	3	4	2	4	4	2	3	3	3	40
Massachusetts	7	21	15	14	14	11	13	14	12	14	13	15	10	166
Minnesota	7	4	7	4	4	4	3	4	2	4	4	3	2	45
Mississippi	5	5	2	9	4	5	1	2	1	1	2	4	2	38
Missouri	3	5	3	5	5	4	5	2	3	2	4	2	3	43
Montana	7	2	2	2	1	1	1	1	1		2	1	1	15
Nebraska	5	2	2	2	1	1	1	1	1	2	1	3	2	19
Nevada	3				1		1							2
New Hampshire	4			1						1		1		3
New Jersey	7	13	14	17	12	15	9	8	8	8	9	9	7	129
New Mexico	4	1	1	1	1	1		1						6
New York	7	35	40	46	31	32	26	22	29	25	18	25	27	356
North Carolina	4	9	8	7	6	6	5	4	5	4	5	3	3	65
North Dakota	4										1			1
Ohio	7	10	9	11	12	10	8	6	9	5	6	8	7	101
Oregon	6		1	1	1	2	1	1		1	1	1	1	11
South Dakota	7	2	2	2	3	2	1	1	1	3	1	1	2	21
Tennessee	4	4	3	2	2	3	2	2	2	1	1	3	3	28
Utah	5	1	1	1	1			1		1		1	1	8
Vermont	5						1			1				2
Virginia	6	11	11	12	14	11	8	9	9	10	7	8	12	122
Washington	6	2	2	3	3	1	2	2	1	2	2	1	2	23
West Virginia	7	5	2	3	4	2	2	3	2	2	2	4	2	33
Wyoming	5		1			1	1	1	1		1			6

[1] Meningococcus meningitis; cerebrospinal fever.

Cerebrospinal meningitis [1]*—Cases reported, 1925*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	6	8	10	12	7	5	3	4	3	3	3	1	65
Arizona			1		1						1		3
Arkansas	3	4	2	1	1	2	3	3	1	4	2		26
California	7	4	8	9	13	6	6	10	12	5	5	25	110
Connecticut	5	2	3	4	4	1	2	3	3	3	1	4	35
Delaware								1		1			2
District of Columbia	1		1	2									4
Florida				2	3	2	1	3		2	1	2	16
Illinois	9	9	8	11	13	5	3	6	5	8	3	26	106
Indiana	2	2	1	2	3	3	2	3		6	3	3	30
Iowa	1	1		1	1			1	5	3	2	1	16
Kansas	7	3	3	2		3	3	6	15	4	5	2	53
Kentucky	3	6	2	2	1		2	6	2	1	1		26
Louisiana	4	1	4	2		3	1	1	2	3	1	1	23
Maine	1	1		4	1	2	1	1	1	2	3	3	20

[1] Meningococcus meningitis; cerebrospinal fever.

Cerebrospinal meningitis—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Maryland	2	6	7	2	3	2	2	6	4	3	3	1	41
Massachusetts	11	9	10	16	12	10	7	5	12	5	2	13	112
Minnesota	3	2	5	5	1	1	5	5	3		1	3	34
Mississippi		1		1	1	1	1			2	2	2	11
Missouri	5	2	6	1	2	4	2	4	4		1		31
Montana	2	1		2	1	3		1			1	1	12
Nebraska		2	1	1		1			2		2	3	12
Nevada	1	3	2										6
New Hampshire	2									1			3
New Jersey	1	4	11	8	6	7	10	6	5	6	8	7	79
New Mexico				1									1
New York	22	16	20	15	14	17	22	17	18	15	11	15	202
North Carolina	7	2	4	1	5	2		1	1	1	1	1	26
Ohio	8	5	7	4	9	5	5	6	13	8	2	5	77
Oregon	2	4	12	24	7	7	7	5	2		4	12	86
South Dakota	1		1			1				1		2	6
Tennessee	11	5	43	4	2	1	2	5	4	3		2	82
Utah	17	7	4	2	3	6	2	1	3			9	54
Vermont				1						1			2
Virginia	13	10	8	3	7	7	4	4	2	3	2	8	71
Washington		1	3	9	9	2	9	2	3	3	6	14	61
West Virginia	6	1	3	2		1	1	3	1		1	2	21
Wyoming		1		2	1	1					3		8

Cerebrospinal meningitis [1]*—Deaths registered, 1925*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1		2	1		1					2		7
Arizona			1		1								2
Arkansas	2	1		1	1						1	1	7
California	2	3	2	3	5	3	3	3	4	5	1	5	39
Colorado	8	7	12	7	10	7	6	3	2	7	6	2	77
Connecticut	3		2	3		2	4	1	2	1		1	19
Delaware								1		1			2
District of Columbia					1	1		1					3
Florida					2								2
Idaho	3	1	3		1	1			2	3	1	1	16
Illinois	3	5	9	2	9	3	1	4	5	4	4	7	56
Indiana	1	2	2	7		2	1	1				1	17
Iowa							1		1				2
Kansas	1		2				1	2	1		2		9
Louisiana	1		2	1		2	1		1		1	1	10
Maine	1			1						2		1	5
Maryland	2	1	4	1	3	3	2	2	4	1	1		24
Massachusetts	6	5	2	9	4	1	2	1	5	1	1	3	40
Minnesota	2	1	2	5		1	3	1	1	1		2	19
Missouri	2	4	1	1	1		3	3				1	16
Montana				5				1					6
Nebraska			2		1					1	1		5
Nevada			2										2
New Jersey	3	2	1	6	2	3	3	3	1		4	2	30
New York	13	5	20	9	9	10	13	9	12	10	9	7	126
North Carolina	6				3	2	1	1	1	1		1	16
North Dakota	1	2	1	2		2	1	1		1			11
Ohio	5	2	9	2	6	4		8	6	8	1	5	51
Oklahoma	8	13	8	1	5	4	8	4	4	2	1	8	61
Oregon	1		3	9	3	4		3	2	1	4	7	37
South Dakota			1										1
Tennessee	2	1	1	2	5	1	1	6	1	1	3	3	27
Utah	11	1	1		4	3	3	2	1			4	30
Vermont				1									1
Virginia	2	2	2	1	3				2		3	4	19
Washington	1	1		6	6	2	3	3					22
Wyoming		1		2	1	1					3		8

[1] Meningococcus meningitis; cerebrospinal fever.

Cerebrospinal meningitis[1]*—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924*

State	Estimated population July 1, 1925	Estimated expectancy: Number of years	Estimated expectancy: Cases	Estimated expectancy: Cases per 1,000 inhabitants	1925: Cases reported	1925: Cases per 1,000 inhabitants	1925: Deaths registered	1925: Deaths per 1,000 inhabitants	1925: Fatalities per 100 cases
Alabama	2,467,000	4	67	0.03	65	0.03	7	0.00	10.8
Arizona	408,000	3	2	.01	3	.01	2	.00	66.7
Arkansas	1,853,000	5	13	.01	26	.01	7	.00	26.9
California	4,021,000	7	133	.04	110	.03	39	.01	35.5
Colorado	1,019,000						77	.08	
Connecticut	1,531,000	7	79	.06	35	.02	19	.01	54.3
Delaware	235,000	4	5	.02	2	.01	2	.01	100.0
District of Columbia	498,000	7	8	.02	4	.01	3	.01	75.0
Florida	1,091,000	5	19	.02	16	.01	2	.00	12.5
Georgia	3,058,000						51	.02	
Idaho	492,000						16	.03	
Illinois	6,965,000	7	170	.03	106	.02	56	.01	52.8
Indiana	3,060,000	7	47	.01	30	.01	17	.01	56.7
Iowa	2,506,000	3	27	.01	16	.01	2	.00	12.5
Kansas	1,814,000	5	47	.03	53	.03	9	.00	17.0
Kentucky	2,488,000	1	61	.02	26	.01			
Louisiana	1,879,000	7	56	.03	23	.01	10	.01	43.5
Maine	783,000	5	15	.02	20	.03	5	.01	25.0
Maryland	1,537,000	7	40	.03	41	.03	24	.02	58.5
Massachusetts	4,128,000	7	166	.04	112	.03	40	.01	35.7
Minnesota	2,564,000	7	45	.02	34	.01	19	.01	55.9
Mississippi	[2] 1,791,000	5	38	.02	11	.01	8	.00	72.7
Missouri	3,467,000	3	43	.01	31	.01	16	.00	51.6
Montana	647,000	7	15	.03	12	.02	6	.01	50.0
Nebraska	1,355,000	5	19	.01	12	.01	5	.00	41.7
Nevada	[2] 77,000	3	2	.03	6	.08	2	.03	33.3
New Hampshire	450,000	4	3	.01	3	.01	0		
New Jersey	3,506,000	7	129	.04	79	.02	30	.01	38.0
New Mexico	379,000	4	6	.02	1	.00			
New York	11,106,000	7	356	.03	202	.02	126	.01	62.4
North Carolina	2,759,000	4	65	.02	26	.01	16	.01	61.5
North Dakota	686,000	4	1	.00			11	.02	
Ohio	6,322,000	7	101	.02	77	.01	51	.01	66.2
Oklahoma	2,239,000						61	.03	
Oregon	846,000	6	11	.01	86	.10	37	.04	43.0
South Dakota	666,000	7	21	.03	6	.01	1	.00	16.7
Tennessee	2,425,000	4	28	.01	82	.03	27	.01	32.9
Utah	492,000	5	8	.02	54	.11	30	.06	55.6
Vermont	[2] 352,000	5	2	.01	2	.01	1	.00	50.0
Virginia	2,449,000	6	122	.05	71	.03	19	.01	26.8
Washington	1,478,000	6	23	.02	61	.04	22	.01	36.1
West Virginia	1,601,000	7	33	.02	21	.01	0		
Wyoming	222,000	5	6	.03	8	.04	8	.04	100.0

[1] Meningococcus meningitis; cerebrospinal fever. [2] Population Jan. 1, 1920.

Chicken pox—Average number of cases reported for the years 1922–1924, by months

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	210	190	285	170	151	51	22	15	14	28	119	123	1,378
Arizona	22	12	20	33	10	9	2	2	1	7	9	28	155
Arkansas	155	117	113	118	66	37	22	29	20	34	73	110	894
California	1,034	1,235	1,221	1,304	1,157	713	286	129	132	330	655	808	9,013
Colorado	202	206	183	154	175	111	61	19	29	141	316	331	1,928
Connecticut	445	291	235	186	201	192	74	13	28	113	318	378	2,474
Delaware	52	36	20	16	15	8	4	1	2	13	16	43	226
District of Columbia	215	200	206	169	143	92	34	5	7	16	101	171	1,359
Florida	34	52	82	74	40	16	1	3	1	1	2	18	324
Georgia	119	94	124	95	48	41	4	5	4	11	39	68	652

Chicken pox—Average number of cases reported for the years 1922–1924, by months—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Idaho	59	37	25	16	19	13	8	8	7	44	104	96	436
Illinois	2, 160	1, 565	1, 390	1, 149	980	863	313	132	173	729	1, 606	1, 879	12, 939
Indiana	401	450	304	335	272	232	47	34	33	216	861	1, 295	[1] 4,540
Iowa	129	71	45	59	38	18	12	3	7	23	103	139	647
Kansas	580	411	335	277	233	133	34	8	36	183	455	559	3, 253
Kentucky	59	65	69	77	36	35	12	9	11	18	59	87	[2] 537
Louisiana	14	46	30	25	18	5	3	------	------	------	6	23	170
Maine	135	134	154	74	62	76	43	12	19	55	186	223	1, 173
Maryland	697	555	536	406	365	250	57	17	26	106	255	482	3, 752
Massachusetts	1, 191	817	734	599	583	502	247	78	85	371	924	1, 250	7, 381
Michigan	1, 159	743	682	656	609	732	271	76	57	381	1, 014	1, 341	7, 721
Minnesota	692	491	432	387	421	305	98	34	61	300	653	746	4, 620
Mississippi	620	641	602	509	442	251	218	181	151	164	382	619	4, 873
Missouri	385	295	247	192	184	118	28	24	25	79	185	273	2, 035
Montana	109	84	67	44	50	36	19	9	17	75	193	103	806
Nebraska	158	120	71	64	66	68	15	4	17	49	111	154	897
Nevada	15	7	9	6	2	2	2	1	1	8	17	15	85
New Hampshire	14	14	10	13	12	10	11	1	3	7	32	36	163
New Jersey	1, 187	885	774	696	698	588	166	51	65	313	687	987	7, 100
New Mexico	75	72	56	58	32	11	3	2	3	14	73	64	463
New York	3, 011	2, 207	1, 983	1, 659	1, 778	1, 643	681	262	217	909	2, 091	2, 905	19, 346
North Carolina	696	773	818	584	431	207	62	29	37	113	479	615	4, 844
North Dakota	44	33	37	16	29	17	18	10	15	44	55	111	429
Ohio	1, 597	1, 161	1, 022	918	804	688	294	96	140	774	1, 828	2, 192	11, 514
Oklahoma	91	42	68	87	53	24	12	5	------	5	14	49	450
Oregon	109	70	79	75	65	59	35	15	21	68	113	129	838
Pennsylvania	3, 226	2, 527	2, 250	1, 734	1, 495	1, 195	407	152	214	1, 273	3, 108	3, 573	21, 154
Rhode Island	39	27	30	29	14	11	7	3	1	17	29	34	241
South Dakota	117	85	73	50	45	31	15	5	6	27	88	106	648
Tennessee	209	172	204	218	177	106	40	26	24	82	192	198	1, 648
Texas	161	223	312	280	216	125	24	23	23	21	102	284	1, 791
Utah	660	574	382	204	228	224	169	50	42	217	457	631	[1] 3,838
Vermont	219	161	105	74	106	99	42	25	24	105	182	276	1, 418
Virginia	966	903	765	665	456	277	125	69	86	224	592	873	6, 001
Washington	322	322	287	297	316	242	114	51	67	213	464	419	3, 114
West Virginia	213	154	173	133	107	78	26	11	21	97	253	330	1, 596
Wisconsin	1, 036	612	607	511	544	636	257	67	89	461	940	1, 232	6, 992
Wyoming	49	50	29	36	35	14	5	1	13	40	75	65	412

[1] 1 year only. [2] 2 years only.

Chicken pox—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	324	211	187	210	180	68	21	6	17	11	48	140	1, 423
Arizona	41	36	49	20	24	16	4	5	5	26	40	18	284
Arkansas	170	182	115	65	58	45	54	33	7	20	50	39	838
California	1, 387	1, 662	1, 676	1, 423	995	624	272	127	180	447	846	1, 211	10, 850
Colorado	495	320	242	136	130	94	45	12	17	96	155	199	1, 941
Connecticut	443	349	245	207	200	225	60	16	12	75	257	412	2, 501
Delaware	12	13	1	10	2	7	------	------	1	10	20	19	95
District of Columbia	179	113	97	88	47	18	6	5	2	25	88	108	776
Florida	39	16	62	61	72	22	3	2	9	3	14	79	382
Georgia	89	202	192	182	236	64	17	15	13	14	30	73	1, 127
Idaho	62	43	48	19	12	5	7	9	3	24	52	61	345
Illinois	1, 877	1, 383	1, 168	830	934	941	250	84	96	469	1, 328	1, 835	11, 195
Indiana	994	526	282	232	295	263	50	25	13	127	348	310	3, 470
Iowa	94	79	117	98	92	63	25	7	8	65	207	256	1, 111
Kansas	672	576	464	323	295	163	15	13	30	206	469	587	3, 813
Kentucky	136	65	22	34	31	33	2	16	7	24	51	78	499
Louisiana	37	61	82	69	49	8	3	1	1	6	14	50	381
Maine	235	198	166	120	111	54	26	7	22	36	160	123	1, 258
Maryland	316	349	360	387	441	341	58	15	21	123	473	607	3, 491
Massachusetts	1, 394	931	821	612	558	601	197	62	88	344	805	1, 108	7, 518

Chicken pox—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Michigan	1,115	689	688	527	565	821	209	93	80	201	776	1,018	6,782
Minnesota	684	527	594	361	447	615	233	110	52	216	577	630	5,046
Mississippi	881	1,180	982	777	484	287	259	251	211	176	280	376	[1] 6,220
Missouri	354	372	273	283	333	140	25	7	13	69	306	441	2,616
Montana	113	70	48	56	30	18	19	9	26	126	112	137	764
Nebraska	135	123	108	69	103	46	11	4	8	13	108	106	884
Nevada	23	10	4	14	10	9		1			1	1	73
New Hampshire	20	11	6	4	27	5			1	20	27	104	225
New Jersey	964	704	627	615	651	688	176	55	53	336	994	1,571	7,434
New Mexico	160	82	93	31	14	15	13	3	8	21	120	97	657
New York	2,459	2,053	2,030	1,747	1,753	2,420	701	244	158	762	2,232	2,916	19,475
North Carolina	659	640	565	501	339	196	47	37	25	52	275	509	3,845
North Dakota	131	143	82	41	41	42	15	7	2	12	55	71	642
Ohio	1,986	1,437	1,290	950	918	1,037	300	113	80	512	1,499	1,677	11,799
Oklahoma	252	192	143	140	88	62	19	2	5	15	65	94	1,077
Oregon	203	102	99	93	103	66	40	15	30	83	168	121	1,123
Pennsylvania	2,542	2,199	1,936	1,282	1,308	976	255	141	148	762	2,988	2,984	17,521
Rhode Island	25	48	50	106	38	37	2	5	8	20	53	71	463
South Dakota	132	61	33	49	12	3	12	20	10	20	78	87	517
Tennessee	260	454	222	170	98	83	41	29	31	34	60	132	1,614
Texas	521	562	319	347	245	178	41	15	5	7	20	139	2,399
Utah	670	473	363	339	379	392	157	41	46	282	694	693	4,532
Vermont	224	257	220	103	90	114	50	23	26	179	279	223	1,788
Virginia	962	743	655	591	629	325	95	31	52	130	432	664	5,309
Washington	580	535	475	387	377	260	118	31	63	278	518	532	4,154
West Virginia	294	100	154	170	120	84	22	15	4	61	182	199	1,495
Wisconsin	1,202	913	781	707	555	559	277	96	86	237	1,038	1,838	8,289
Wyoming	82	43	56	22	37	29	10	3	7	55	97	70	511

[1] Includes 76 cases for which the month is not given.

Chicken pox—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.	Total
California			2		1		1		1				5
Florida								1					1
Illinois	3	2	2	1	1	3	1		1		1	3	18
Iowa							1						1
Louisiana	2												2
Maryland			1									1	2
Massachusetts	2	1	1	2	2					1			9
Minnesota	3	1	1		1		1	1					8
Missouri											1		1
Montana	2		1										3
Nebraska			1										1
New Hampshire	1		1	1									3
New Jersey				1	1					1		1	4
New York	2		1	3	2	2	3	1			1	3	18
North Carolina		1							1				2
North Dakota	2												2
Ohio	4	3		2		1	1					1	12
Rhode Island				1									1
Utah			1										1
Washington	1												1
West Virginia				1									1
Wisconsin												2	2

Chicken pox—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1925; average and indicated annual rates based on the years 1922–1924

State	Estimated population, July 1, 1925	Average, 1922–1924		1925				
		Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	1,378	0.57	1,423	0.58	0		
Arizona	408,000	155	.41	284	.70	0		
Arkansas	1,853,000	894	.49	838	.45	0		
California	4,021,000	9,013	2.37	10,850	2.70	5	0.00	2,170.0
Colorado	1,019,000	1,928	1.95	1,941	1.90	0		
Connecticut	1,531,000	2,474	1.68	2,501	1.63	0		
Delaware	235,000	226	.98	95	.40	0		
District of Columbia	498,000	1,359	2.86	776	1.56	0		
Florida	1,091,000	324	.31	382	.35	1	.00	382.0
Georgia	3,058,000	652	.22	1,127	.37	0		
Idaho	492,000	436	.93	345	.70	0		
Illinois	6,965,000	12,939	1.91	11,195	1.61	18	.00	621.9
Indiana	3,060,000	[1] 4,540	1.49	3,470	1.13	0		
Iowa	2,506,000	647	.26	1,111	.44	1	.00	1,111.0
Kansas	1,814,000	3,253	1.81	3,813	2.10	0		
Kentucky	2,488,000	[2] 537	.22	499	.20	0		
Louisiana	1,879,000	170	.09	381	.20	2	.00	190.5
Maine	783,000	1,173	1.51	1,258	1.61	0		
Maryland	1,537,000	3,752	2.49	3,491	2.27	2	.00	1,745.5
Massachusetts	4,128,000	7,381	1.83	7,516	1.82	9	.00	835.1
Michigan	4,155,000	7,721	1.94	6,782	1.63	0		
Minnesota	2,564,000	4,620	1.85	5,046	1.97	8	.00	630.7
Mississippi	[3] 1,791,000	4,873	2.72	6,220	3.47			
Missouri	3,467,000	2,035	.59	2,616	.75	1	.00	2,616.0
Montana	647,000	806	1.32	764	1.18	3	.00	254.7
Nebraska	1,355,000	897	.67	834	.62	1	.00	834.0
Nevada	[3] 77,000	85	1.10	73	.95	0		
New Hampshire	450,000	163	.36	225	.50	3	.01	75.0
New Jersey	3,506,000	7,100	2.10	7,434	2.12	4	.00	1,858.5
New Mexico	379,000	463	1.24	657	1.73			
New York	11,106,000	19,346	1.78	19,475	1.75	18	.00	1,081.9
North Carolina	2,759,000	4,844	1.80	3,845	1.39	2	.00	1,922.5
North Dakota	686,000	429	.64	642	.94	2	.00	321.0
Ohio	6,322,000	11,514	1.88	11,799	1.87	12	.00	983.2
Oklahoma	2,239,000	450	.21	1,077	.48	0		
Oregon	846,000	838	1.02	1,123	1.35	0		
Pennsylvania	9,318,000	21,154	2.32	17,521	1.88			
Rhode Island	639,000	241	.38	463	.72	1	.00	463.0
South Dakota	666,000	648	.99	517	.78	0		
Tennessee	2,425,000	1,648	.69	1,614	.67	0		
Texas	5,098,000	1,794	.36	2,390	.47	0		
Utah	492,000	[1] 3,838	8.05	4,532	9.21	1	.00	4,532.0
Vermont	[3] 352,000	1,418	4.03	1,788	5.08	0		
Virginia	2,449,000	6,001	2.50	5,309	2.17	0		
Washington	1,478,000	3,114	2.17	4,154	2.81	1	.00	4,154.0
West Virginia	1,601,000	1,596	1.03	1,495	.93	1	.00	1,495.0
Wisconsin	2,801,000	6,992	2.55	8,289	2.96	2	.00	4,144.5
Wyoming	222,000	412	1.94	511	2.30	0		

[1] One year only. [2] Two years only. [3] Population Jan. 1, 1920.

Dengue—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1			3			1	8	6	51	19	8	97
Arkansas											4		4
Florida	2		1		1	1	1	4	4	1	1	4	20
Georgia		4	1	1		5	9	1	8	3	2	2	36
Louisiana	1		3	7	1	7		5					24
Mississippi	6	6	6	5	11	14	10	106	329	741	426	87	[1] 1,810
Oklahoma	1												1
Texas	71	59	10	2		1	1		3	2	1	2	152

[1] Includes 63 cases for which the month is not given.

Dengue—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Florida	1		1		1	1	1	2					7

Dengue—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,407,000	97	0.04	0		
Arkansas	1,853,000	4	.00			
Florida	1,091,000	20	.02	7	0.01	2.9
Georgia	3,058,000	36	.01	0		
Louisiana	1,879,000	24	.01	0		
Mississippi	[1] 1,791,000	1,810	1.01			
Oklahoma	2,239,000	1	.00	0		
Texas	5,098,000	152	.03			

[1] Population Jan 1, 1920.

Diphtheria—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	7	70	48	40	26	29	28	50	153	240	283	180	104	1,251
Arizona	6	12	10	8	8	7	6	3	6	6	11	14	20	111
Arkansas	7	54	24	22	14	17	9	8	23	60	126	125	71	553
California	7	554	518	592	504	576	570	398	511	491	594	787	651	6,755
Colorado	7	127	128	113	113	95	90	86	73	148	155	123	151	1,421
Connecticut	7	322	255	271	202	178	130	132	124	190	354	385	370	2,919
Delaware	5	22	14	17	15	17	6	5	8	10	32	19	13	178
District of Columbia	7	102	61	49	45	40	30	18	20	35	74	114	87	675
Florida	7	71	44	34	28	26	19	26	32	68	83	107	81	619
Georgia	6	65	51	47	43	31	36	46	109	248	367	266	124	1,433
Idaho	5	15	14	5	9	10	5	6	13	33	28	32	28	198
Illinois	7	1,139	938	1,029	727	671	566	487	411	751	1,589	1,628	1,174	11,110
Indiana	7	382	323	247	186	142	115	117	113	222	422	483	515	3,267
Iowa	7	149	89	75	53	70	58	52	60	122	194	193	173	1,288
Kansas	7	220	162	135	135	100	61	62	105	187	471	463	352	2,453
Kentucky	2	170	142	78	83	50	48	42	83	199	289	293	167	1,644
Louisiana	7	91	84	51	51	41	34	47	56	70	92	118	108	843
Maine	7	46	38	38	32	29	30	30	30	32	54	84	59	502
Maryland	7	306	177	181	146	131	110	89	110	145	302	401	319	2,417
Massachusetts	7	938	681	698	609	561	532	441	428	525	887	983	1,018	8,301
Michigan	7	912	640	636	496	500	401	408	419	600	1,002	1,021	1,035	8,070
Minnesota	7	373	266	253	229	262	188	204	226	365	614	522	459	3,961
Mississippi	7	99	81	68	46	45	44	60	153	348	417	330	218	1,909
Missouri	3	459	386	263	259	193	149	117	124	310	599	522	484	3,865
Montana	7	44	39	40	36	28	19	19	16	24	27	54	30	376
Nebraska	7	85	59	61	56	33	35	35	30	96	171	149	110	926
Nevada	4	1	1			1	1	1	2	1	3	2	1	14
New Hampshire	5	37	35	28	27	15	15	13	6	27	40	70	53	366
New Jersey	7	795	594	550	460	454	387	341	285	367	749	787	822	6,591
New Mexico	5	103	73	98	67	98	61	79	57	67	100	117	135	1,055
New York	7	2,203	1,720	1,809	1,661	1,871	1,587	1,124	905	908	1,477	1,934	1,870	19,069
North Carolina	7	202	122	115	99	78	60	114	311	817	1,110	707	379	4,114
North Dakota	7	57	54	57	30	21	26	30	28	40	56	68	73	540
Ohio	7	971	725	628	431	376	361	330	392	709	1,103	1,131	1,075	8,232
Oklahoma	4	70	34	75	27	25	18	14	18	45	115	89	111	[illegible]

Diphtheria—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive—Continued

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Oregon	7	104	49	41	33	44	43	27	26	34	95	115	117	728
Pennsylvania	7	1,661	1,355	1,280	1,052	915	828	762	786	1,162	2,160	2,419	2,154	16,534
Rhode Island	7	107	103	79	73	63	48	46	33	63	91	127	106	939
South Dakota	7	43	35	42	33	21	25	27	24	28	48	88	45	459
Tennessee	4	74	61	40	33	25	12	33	117	236	278	139	109	1,157
Texas	6	174	136	116	76	83	57	84	80	133	147	275	249	1,610
Utah	5	46	41	44	37	47	40	43	39	42	40	35	57	511
Vermont	7	23	18	18	18	18	16	20	13	27	38	33	27	269
Virginia	7	316	232	163	104	90	91	99	193	448	930	796	533	3,995
Washington	7	138	118	77	79	92	71	75	66	84	149	148	147	1,244
West Virginia	7	231	137	109	75	61	58	56	76	270	384	378	290	2,125
Wisconsin	7	367	248	239	179	178	161	156	177	207	404	491	510	3,317
Wyoming	7	12	11	6	10	6	3	6	4	10	8	7	4	87

Diphtheria—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	151	61	55	35	38	32	38	97	154	287	231	117	1,296
Arizona	13	21	14	14	6	2	5	-----	3	12	26	11	127
Arkansas	29	50	19	13	9	11	7	10	23	47	76	27	321
California	634	541	558	559	430	335	332	289	375	428	547	547	5,575
Colorado	99	97	64	86	125	98	82	84	149	145	176	113	1,318
Connecticut	246	202	206	138	103	122	80	64	67	126	173	185	1,712
Delaware	28	11	12	9	13	6	1	9	12	25	38	40	204
District of Columbia	75	83	50	31	65	31	19	17	31	59	117	107	685
Florida	58	27	36	33	31	49	51	64	83	101	129	88	753
Georgia	68	84	65	59	34	31	30	70	83	159	167	93	943
Idaho	1	23	5	15	21	25	9	6	11	2	266	32	416
Illinois	584	457	439	391	370	323	287	266	273	489	584	541	5,004
Indiana	257	174	118	119	84	78	54	97	102	382	202	228	1,985
Iowa	96	81	42	66	72	38	21	21	69	228	180	133	1,047
Kansas	104	183	113	69	54	37	26	34	114	133	137	97	1,101
Kentucky	94	72	29	33	17	19	13	59	45	101	85	93	640
Louisiana	85	97	80	53	40	31	30	49	78	96	162	146	947
Maine	51	23	24	12	13	20	12	31	14	19	25	15	259
Maryland	158	164	140	131	113	74	67	67	119	173	155	149	1,510
Massachusetts	578	497	429	394	351	357	239	200	288	388	351	390	4,182
Michigan	421	299	340	307	239	296	203	200	224	474	474	448	3,925
Minnesota	267	355	319	267	342	233	221	302	356	443	355	318	3,778
Mississippi	138	57	71	51	47	33	48	124	151	238	250	159	[1] 1,370
Missouri	355	325	305	264	330	176	114	139	145	368	389	316	3,216
Montana	52	32	45	36	21	12	19	13	19	18	21	11	329
Nebraska	52	41	32	42	22	26	17	13	21	81	29	47	423
Nevada	5	2	1	-----	-----	-----	-----	1	-----	-----	-----	-----	9
New Hampshire	30	17	13	8	13	22	5	7	10	22	8	15	170
New Jersey	445	407	392	313	301	276	269	212	256	437	371	460	4,139
New Mexico	24	29	40	9	11	11	31	19	11	18	21	4	231
New York	1,367	1,222	1,403	1,576	1,572	1,352	840	568	568	933	970	1,052	13,423
North Carolina	205	140	130	90	83	82	112	276	564	955	545	255	3,437
North Dakota	24	42	17	19	20	6	5	11	22	43	19	28	256
Ohio	503	420	406	294	329	237	211	245	370	772	833	617	5,237
Oklahoma	107	105	88	53	43	28	12	34	66	187	200	157	1,080
Oregon	131	101	115	131	116	105	58	62	54	155	182	160	1,370
Pennsylvania	961	930	998	957	880	714	537	551	663	980	1,118	890	10,179
Rhode Island	65	73	39	49	29	28	16	14	23	27	51	117	533
South Dakota	37	25	32	13	18	11	14	18	23	32	17	40	280
Tennessee	84	78	47	42	22	11	10	35	81	133	88	95	726
Texas	286	236	145	97	89	48	65	73	43	94	187	273	1,636
Utah	47	41	47	43	62	54	35	33	73	69	160	174	838
Vermont	10	18	8	17	16	7	10	7	20	14	22	17	166
Virginia	194	163	137	97	91	54	92	199	410	698	561	368	3,064
Washington	182	212	199	105	87	79	63	65	101	106	133	92	1,424
West Virginia	132	92	62	51	48	20	33	57	88	212	161	129	1,085
Wisconsin	227	163	170	203	140	144	167	166	160	218	258	347	2,363
Wyoming	7	12	1	7	21	5	4	6	15	6	6	7	97

[1] Includes 3 cases for which the month is not given.

Diphtheria—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	16	6	3	5	6	4	6	17	19	36	31	19	168
Arizona	5	------	5	3	2	1	------	1	------	1	1	3	22
Arkansas	6	9	3	6	9	7	4	11	19	24	23	27	148
California	26	27	23	29	18	16	13	21	20	18	26	29	266
Colorado	16	9	10	11	20	13	10	8	15	17	14	7	150
Connecticut	16	17	13	15	6	8	7	4	5	11	11	15	128
Delaware	4	1	2	1	3	2	------	2	1	5	4	5	30
District of Columbia	4	5	3	4	1	3	1	3	4	4	4	1	37
Florida	9	2	2	6	8	4	5	7	9	12	23	18	105
Idaho	8	------	5	2	3	3	2	1	2	4	1	3	34
Illinois	44	24	30	32	29	27	23	25	24	43	52	54	407
Indiana	17	17	11	13	8	6	3	7	8	23	26	31	170
Iowa	8	11	6	11	10	3	8	2	11	18	16	17	121
Kansas	8	8	6	3	1	2	3	1	2	13	15	9	71
Kentucky	22	18	23	11	10	10	7	11	28	39	46	38	263
Louisiana	13	10	9	4	4	4	4	11	9	17	23	20	128
Maine	5	4	5	1	1	3	3	2	3	1	3	4	35
Maryland	11	9	9	4	2	7	2	7	8	9	10	10	88
Massachusetts	52	30	30	25	23	23	20	13	23	29	29	32	329
Michigan	33	19	32	23	25	33	23	18	14	58	37	43	358
Minnesota	17	23	36	15	20	19	26	19	16	18	9	13	231
Missouri	23	29	28	21	18	8	8	9	17	26	34	29	250
Montana	5	9	3	4	3	1	------	1	3	1	1	1	32
Nebraska	7	8	11	4	2	3	4	4	11	15	6	2	77
Nevada	1	------	------	------	------	------	------	------	------	------	------	------	1
New Hampshire	5	3	3	1	1	4	2	1	------	------	2	8	30
New Jersey	45	28	28	20	27	25	18	23	20	40	32	21	327
New York	100	81	99	133	130	98	63	40	52	58	75	71	1,000
North Carolina	35	21	13	15	4	6	15	21	30	66	55	29	310
North Dakota	4	6	2	2	------	4	2	1	3	6	2	2	34
Ohio	25	23	34	25	26	12	26	27	24	57	68	42	389
Oklahoma	17	18	8	4	7	3	1	------	6	22	29	28	143
Oregon	7	7	14	13	8	7	3	3	6	14	8	11	101
Pennsylvania	113	80	98	90	85	63	53	45	63	82	96	109	977
Rhode Island	10	5	5	4	2	3	2	1	2	------	4	9	47
South Dakota	4	3	2	------	3	1	2	------	1	3	3	4	26
Tennessee	20	10	13	9	3	3	7	10	17	33	40	20	185
Texas	16	12	16	7	10	7	7	6	7	15	34	39	176
Utah	2	2	2	4	4	------	2	3	7	3	14	4	47
Vermont	1	4	1	5	5	1	------	------	2	2	2	3	26
Virginia	17	16	13	9	8	6	7	19	21	42	41	27	226
Washington	13	9	4	12	6	5	5	12	7	5	13	5	96
West Virginia	22	7	9	7	4	5	9	5	13	28	37	22	168
Wisconsin	17	11	17	21	10	10	15	9	13	13	18	17	171
Wyoming	1	1	------	2	4	1	1	1	1	------	------	------	12

Diphtheria—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population, July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	7	1,251	0.53	1,296	0.53	168	0.07	13.0
Arizona	408,000	6	111	.31	127	.31	22	.05	17.3
Arkansas	1,853,000	7	553	.31	321	.17	148	.08	46.1
California	4,021,000	7	6,755	1.88	5,575	1.39	266	.07	4.8
Colorado	1,010,000	7	1,421	1.48	1,318	1.29	150	.15	11.4
Connecticut	1,531,000	7	2,919	2.05	1,712	1.12	128	.08	7.5
Delaware	235,000	5	178	.78	204	.87	30	.13	14.7
District of Columbia	498,000	7	675	1.54	685	1.38	37	.07	5.4
Florida	1,091,000	7	619	.62	753	.69	105	.10	13.9
Georgia	3,058,000	6	1,433	.48	943	.31	185	.06	19.6
Idaho	492,000	5	198	.43	416	.85	34	.07	8.2
Illinois	6,965,000	7	11,140	1.68	5,004	.72	407	.06	8.1
Indiana	3,060,000	7	3,267	1.10	1,985	.65	170	.06	8.6
Iowa	2,506,000	7	1,288	.53	1,047	.42	121	.05	11.6
Kansas	1,814,000	7	2,453	1.38	1,101	.61	71	.04	6.4
Kentucky	2,488,000	2	1,644	.67	640	.26	263	.11	41.1
Louisiana	1,879,000	7	843	.46	947	.50	128	.07	13.5
Maine	783,000	7	502	.65	259	.33	35	.04	13.5
Maryland	1,537,000	7	2,417	1.61	1,510	.98	88	.06	5.8
Massachusetts	4,128,000	7	8,301	2.11	4,482	1.09	329	.08	7.3
Michigan	4,155,000	7	8,070	2.12	3,925	.94	358	.09	9.1
Minnesota	2,564,000	7	3,961	1.63	3,778	1.47	231	.09	6.1
Mississippi	[1] 1,791,000	7	1,909	1.07	1,370	.77	130	.07	9.5
Missouri	3,467,000	3	3,865	1.12	3,216	.93	250	.07	7.8
Montana	647,000	7	376	.65	329	.51	32	.05	9.7
Nebraska	1,355,000	7	926	.71	123	.31	77	.06	18.2
Nevada	[1] 77,000	4	14	.18	9	.12	1	.01	11.1
New Hampshire	450,000	5	366	.82	170	.38	30	.07	17.6
New Jersey	3,506,000	7	6,591	2.03	4,139	1.18	327	.09	7.9
New Mexico	379,000	5	1,055	2.83	231	.61			
New York	11,106,000	7	19,069	1.80	13,423	1.21	1,000	.09	7.1
North Carolina	2,759,000	7	4,114	1.57	3,437	1.25	310	.11	9.0
North Dakota	686,000	7	540	.82	256	.37	34	.05	13.3
Ohio	6,322,000	7	8,232	1.39	5,237	.83	389	.08	7.4
Oklahoma	2,239,000	4	641	.30	1,080	.48	143	.06	13.2
Oregon	846,000	7	728	.91	1,370	1.62	101	.12	7.4
Pennsylvania	9,318,000	7	16,534	1.86	10,179	1.09	977	.10	9.6
Rhode Island	639,000	7	939	1.53	533	.83	47	.07	8.8
South Dakota	666,000	7	459	.71	280	.42	26	.04	9.3
Tennessee	2,425,000	4	1,157	.48	726	.30	185	.08	25.5
Texas	5,098,000	6	1,610	.34	1,636	.32	176	.03	10.8
Utah	492,000	5	511	1.11	838	1.70	47	.10	5.6
Vermont	[1] 352,000	7	269	.76	166	.47	26	.07	15.7
Virginia	2,449,000	7	3,995	1.70	3,064	1.25	226	.09	7.4
Washington	1,478,000	7	1,244	.90	1,424	.96	96	.06	6.7
West Virginia	1,601,000	7	2,125	1.42	1,085	.68	168	.10	15.5
Wisconsin	2,801,000	7	3,317	1.24	2,363	.84	171	.06	7.2
Wyoming	222,000	7	87	.43	97	.41	12	.05	12.4

[1] Population Jan. 1, 1920.

Gonorrhea—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	400	339	343	394	410	412	471	520	498	534	425	413	5,159
Arizona	14	16	10	6	11	14	----	----	----	----	----	----	[1] 71
Arkansas	120	128	178	144	100	150	157	144	123	141	99	87	1,571
California	789	780	737	658	702	551	656	622	810	586	725	689	8,305
Colorado	98	84	137	95	93	121	165	140	160	167	88	96	1,444
Connecticut	129	81	103	72	85	96	114	94	89	80	157	81	1,181
Delaware	27	33	29	29	22	28	40	33	38	54	23	20	376
Florida	140	199	146	150	135	139	200	189	216	253	206	199	2,172
Georgia	282	800	350	478	377	802	562	611	631	507	400	414	6,214
Idaho	12	10	18	15	21	7	18	24	15	16	16	19	191
Illinois	1,528	1,425	1,527	1,563	1,624	1,644	1,501	1,655	2,317	1,637	1,672	1,496	19,589
Indiana	264	171	192	258	155	195	173	134	196	155	180	183	2,256
Kansas	134	67	72	79	77	100	74	127	136	114	57	88	1,185
Kentucky	1,341	1,198	1,430	1,221	1,238	1,200	1,126	1,193	1,295	1,346	1,156	1,042	14,786
Louisiana	216	180	270	229	267	301	291	217	321	236	215	133	2,876
Maine	52	30	34	70	27	26	55	50	47	99	40	57	587
Maryland	219	153	194	179	176	238	198	229	178	200	199	231	2,394
Massachusetts	443	316	450	361	348	417	469	513	482	484	440	469	5,192
Michigan	827	739	843	773	884	897	1,012	801	1,556	1,093	850	799	11,074
Minnesota	465	352	411	377	437	472	539	521	572	489	516	461	5,612
Mississippi	1,258	1,382	1,423	1,521	1,401	1,393	1,470	1,652	1,726	1,836	1,692	1,602	18,356
Missouri	288	316	337	366	364	325	363	417	345	319	225	272	3,937
Montana	20	16	3	24	12	0	----	----	----	----	----	----	[1] 75
Nebraska	173	158	145	212	172	169	210	238	243	250	266	245	2,481
New Hampshire	20	8	32	15	15	18	29	15	10	16	11	20	209
New Jersey	305	216	318	280	280	306	364	281	351	311	220	308	3,540
New Mexico	20	15	64	24	41	12	18	26	31	22	27	17	317
New York	946	652	998	855	855	765	793	702	862	1,042	697	928	10,095
North Carolina	212	150	173	185	219	176	0	33	34	28	20	13	[2] 1,243
North Dakota	45	54	53	55	50	62	79	111	99	83	75	80	846
Ohio	379	340	376	366	351	482	471	440	465	420	398	315	4,803
Oregon	139	89	81	93	68	75	122	97	159	144	91	123	1,281
Pennsylvania	193	171	214	188	168	202	226	223	237	230	213	222	2,487
Rhode Island	76	28	51	38	68	45	42	58	38	30	50	57	581
South Carolina	184	202	198	139	1,147	858	945	896	1,052	----	----	----	[1] 5,621
South Dakota	69	53	39	35	55	52	87	78	70	86	27	61	712
Tennessee	166	138	135	169	176	170	228	216	132	170	125	791	2,616
Texas	893	850	844	1,521	1,207	1,428	1,121	1,488	1,267	1,234	1,306	880	14,039
Utah	16	11	10	12	18	15	----	----	----	----	----	----	[1] 82
Vermont	27	15	27	22	35	40	31	41	41	42	24	40	385
Virginia	81	92	84	68	116	58	80	68	63	43	59	129	941
Washington	58	83	77	76	32	55	84	80	98	114	123	108	988
West Virginia	192	181	193	200	186	239	277	249	226	255	322	270	2,790
Wisconsin	220	209	201	186	185	210	230	280	226	209	216	225	2,597
Wyoming	7	6	11	4	0	----	----	----	----	----	----	----	[1] 28

[1] Information not available for the entire year.
[2] Figures from July to December, inclusive, are for clinics only.

NOTE.—Iowa and Oklahoma did not report in 1925.

Gonorrhea—Cases reported and indicated morbidity rates, 1925

State	Estimated population, July 1, 1925	Total cases reported	Cases per 1,000 inhabitants	State	Estimated population, July 1, 1925	Total cases reported	Cases per 1,000 inhabitants
Alabama	2,467,000	5,159	2.09	Missouri	3,467,000	3,937	1.14
Arkansas	1,853,000	1,571	.85	Nebraska	1,355,000	2,481	1.83
California	4,021,000	8,305	2.07	New Hampshire	450,000	209	.46
Colorado	1,019,000	1,444	1.42	New Jersey	3,506,000	3,540	1.01
Connecticut	1,531,000	1,181	.77	New Mexico	379,000	317	.84
Delaware	235,000	376	1.60	New York	11,106,000	10,095	.91
Florida	1,091,000	2,172	1.99	North Dakota	686,000	846	1.23
Georgia	3,058,000	6,214	2.03	Ohio	6,322,000	4,803	.76
Idaho	492,000	191	.39	Oregon	846,000	1,281	1.51
Illinois	6,965,000	19,589	2.81	Pennsylvania	9,318,000	2,487	.27
Indiana	3,060,000	2,256	74	Rhode Island	639,000	581	.91
Kansas	1,814,000	1,185	.65	South Dakota	666,000	712	1.07
Kentucky	2,488,000	14,786	5 94	Tennessee	2,425,000	2,616	1.08
Louisiana	1,879,000	2,876	1.53	Texas	5,098,000	14,039	2.75
Maine	783,000	587	.75	Vermont	[1] 352,000	385	1.09
Maryland	1,537,000	2,394	1.56	Virginia	2,449,000	941	.38
Massachusetts	4,128,000	5,192	1.26	Washington	1,478,000	988	.67
Michigan	4,155,000	11,074	2.67	West Virginia	1,601,000	2,790	1.74
Minnesota	2,564,000	5,612	2 19	Wisconsin	2,801,000	2,597	.93
Mississippi	[1] 1,791,000	18,356	10.25				

[1] Population Jan. 1, 1920.

Influenza—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1,679	3,328	2,776	986	434	56	14	29	18	70	262	324	9,976
Arizona	-----	-----	154	57	24	-----	-----	-----	3	-----	1	-----	239
Arkansas	865	1,332	1,790	644	175	63	44	71	72	109	390	303	5,858
California	195	444	723	349	286	59	34	27	35	56	61	357	2,636
Delaware	19	25	15	8	1	1	-----	2	1	2	10	4	88
Florida	179	208	107	56	24	20	23	23	19	16	28	58	761
Georgia	446	3,425	4,777	1,441	500	102	25	55	41	118	399	667	11,996
Illinois	138	149	763	302	243	66	51	66	62	127	55	959	2,981
Indiana	383	508	821	850	257	74	67	194	64	151	81	145	3,595
Kansas	71	124	490	109	47	7	2	11	8	14	28	52	963
Louisiana	259	355	855	354	150	36	11	29	30	76	120	178	2,402
Maine	44	85	497	896	379	2	5	-----	1	3	4	7	1,873
Maryland	646	420	315	247	120	29	26	15	36	57	76	120	2,125
Massachusetts	175	261	374	182	108	22	6	9	8	18	36	45	1,244
Minnesota	32	36	75	132	146	45	24	16	18	26	22	26	598
Mississippi	9,550	19,368	17,359	5,518	1,130	215	209	246	181	1,295	2,811	4,009	[1] 62,066
Montana	9	5	14	14	21	12	6	-----	-----	6	1	10	98
Nevada	13	2	1	2	2	3	-----	-----	2	-----	5	2	32
New Jersey	74	160	162	92	39	8	7	5	16	35	37	34	669
New Mexico	57	116	113	173	2	-----	-----	3	-----	-----	4	1	469
New York	434	792	1,177	798	280	102	35	22	76	82	109	180	4,087
Oklahoma	2,882	2,657	2,792	997	455	131	50	86	56	251	525	497	11,379
Oregon	17	27	768	576	112	11	3	2	4	19	31	32	1,602
Rhode Island	6	6	26	37	2	-----	-----		-----	18	8	32	135
Tennessee	589	1,576	1,402	372	160	2	7	46	11	98	59	221	4,543
Texas	6,979	13,793	2,847	849	133	44	13	3	7	13	113	126	24,920
Utah	66	39	736	581	80	23	12	24	12	11	30	182	1,796
Virginia	8,484	8,932	6,745	3,457	1,200	777	802	787	789	969	1,252	2,076	36,270
West Virginia	244	307	224	264	109	26	28	70	34	19	54	127	1,506
Wisconsin	160	206	311	1,710	778	155	40	25	81	81	55	69	3,671
Wyoming	3	4	9	9	12	1	5	3	3	5	2	4	60

[1] Includes 175 cases for which the month is not given.

Influenza—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Total
Alabama	138	269	281	157	74	22	7	8	12	17	65	104	1,154
Arizona	15	24	37	28	12	3	1	3	4	1	6	3	137
Arkansas	67	157	183	101	81	61	13	7	14	12	22	65	783
California	80	90	123	116	67	42	36	7	19	27	42	81	730
Colorado	52	47	82	121	58	17	11	13	17	19	30	32	409
Connecticut	49	62	80	71	35	15	2	3	9	14	28	35	403
Delaware	12	11	6	4	------	------	------	2	1	2	5	4	47
District of Columbia	6	17	13	9	3	2	------	------	1	3	4	3	61
Florida	50	71	62	43	18	13	14	4	13	11	18	21	338
Idaho	9	8	4	7	27	24	15	3	3	6	12	7	125
Illinois	201	224	399	282	107	51	22	28	30	73	78	99	1,594
Indiana	104	191	374	260	107	30	22	36	29	45	60	96	1,354
Iowa	97	101	133	155	83	41	19	29	49	47	51	39	844
Kansas	11	28	52	40	10	13	2	8	2	7	22	29	224
Kentucky	132	147	235	186	92	35	25	20	28	54	54	65	1,073
Louisiana	125	185	209	105	56	25	5	9	9	24	45	70	807
Maine	30	16	42	73	71	25	8	10	9	22	18	16	340
Maryland	60	43	49	32	21	5	6	5	10	12	13	24	280
Massachusetts	59	90	124	123	33	13	1	9	10	19	32	30	543
Michigan	88	103	166	178	125	60	19	19	33	49	40	63	943
Minnesota	31	29	67	118	117	38	18	13	14	24	19	24	512
Missouri	214	262	437	296	136	48	38	20	25	54	85	103	1,718
Montana	8	9	9	16	11	5	1	------	5	2	6	4	76
Nebraska	36	35	114	105	51	9	10	17	23	27	23	33	483
Nevada	3	2	1	2	2	3	------	------	------	------	------	2	15
New Hampshire	20	21	51	53	26	12	6	3	3	7	8	15	225
New Jersey	73	57	58	55	38	15	5	8	9	15	35	37	405
New York	188	183	222	226	147	60	27	22	33	82	88	116	1,394
North Carolina	140	238	287	177	48	18	12	14	17	23	49	60	1,083
North Dakota	5	11	8	25	27	------	------	3	2	1	2	1	85
Ohio	117	198	378	347	142	64	42	75	73	99	104	114	1,783
Oklahoma	64	86	102	50	28	12	7	3	5	13	7	16	393
Oregon	18	19	39	55	18	13	7	4	5	7	7	4	196
Pennsylvania	417	429	508	583	306	111	59	64	105	163	207	272	3,314
Rhode Island	10	8	20	25	15	9	2	2	------	7	4	9	111
South Dakota	12	15	24	56	31	11	12	5	11	13	11	10	211
Tennessee	161	209	327	228	89	41	26	12	13	23	58	118	1,305
Texas	183	285	228	116	53	24	37	13	7	21	38	75	1,080
Utah	17	13	18	26	14	7	1	3	3	5	11	6	124
Vermont	14	12	37	23	19	12	3	3	5	3	12	19	162
Virginia	181	225	229	142	67	23	18	12	14	23	45	72	1,051
Washington	15	21	29	18	58	31	14	14	10	23	19	24	276
West Virginia	25	19	36	51	22	14	9	11	4	7	18	23	239
Wisconsin	78	52	129	236	151	56	25	14	24	48	25	41	879
Wyoming	3	4	9	9	8	------	5	------	2	5	------	------	45

Influenza—Cases reported, deaths registered, and indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	9,976	4.04	1,154	0.47	8.6
Arizona	408,000	239	.59	137	.31	1.7
Arkansas	1,853,000	5,858	3.16	783	.42	7.5
California	4,021,000	2,636	.66	730	.18	3.6
Colorado	1,019,000			499	.49	
Connecticut	1,531,000			403	.26	
Delaware	235,000	88	.37	47	.20	1.9
District of Columbia	498,000			61	.12	
Florida	1,091,000	761	.70	338	.31	2.3
Georgia	3,058,000	11,996	3.92	1,384	.45	8.7
Idaho	492,000			125	.25	
Illinois	6,965,000	2,981	.43	1,594	.23	1.9
Indiana	3,060,000	3,595	1.17	1,354	.44	2.7
Iowa	2,506,000			844	.34	
Kansas	1,814,000	963	.53	224	.12	4.3
Kentucky	2,488,000			1,073	.43	
Louisiana	1,879,000	2,462	1.31	867	.46	2.8
Maine	783,000	1,873	2.39	340	.43	5.5
Maryland	1,537,000	2,125	1.38	280	.18	7.3
Massachusetts	4,128,000	1,244	.30	543	.13	2.4
Michigan	4,155,000			943	.23	
Minnesota	2,564,000	598	.23	512	.20	1.2
Mississippi	[1] 1,791,000	62,066	34.66	1,051	.59	59.1
Missouri	3,467,000			1,718	.50	
Montana	647,000	98	.15	76	.12	1.3
Nebraska	1,355,000			483	.36	
Nevada	[1] 77,000	32	.42	15	.19	2.1
New Hampshire	450,000			225	.50	
New Jersey	3,506,000	669	.19	405	.12	1.7
New Mexico	379,000	469	1.24			
New York	11,106,000	4,087	.37	1,394	.13	2.9
North Carolina	2,759,000			1,083	.39	
North Dakota	686,000			85	.12	
Ohio	6,322,000			1,783	.28	
Oklahoma	2,239,000	11,379	5.08	393	.18	29.0
Oregon	846,000	1,602	1.89	196	.23	8.2
Pennsylvania	9,318,000			3,314	.36	
Rhode Island	639,000	135	.21	111	.17	1.2
South Dakota	666,000			211	.32	
Tennessee	2,125,000	4,543	1.87	1,305	.54	3.5
Texas	5,098,000	24,920	4.89	1,080	.21	23.1
Utah	492,000	1,796	3.65	124	.25	14.5
Vermont	[1] 352,000			162	.46	
Virginia	2,449,000	36,270	14.81	1,051	.43	34.5
Washington	1,478,000			276	.19	
West Virginia	1,601,000	1,506	.94	239	.15	6.3
Wisconsin	2,801,000	3,671	1.31	879	.31	4.2
Wyoming	222,000	60	.27	45	.20	1.3

[1] Population Jan. 1, 1920.

Malaria—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	70	42	107	129	288	318	488	667	533	463	145	52	3,302
Arizona								1					1
Arkansas	88	101	171	224	320	543	525	785	547	256	271	113	3,944
California	2	5	1	5	2	4	15	6	21	8	5	3	77
Connecticut	1		1			5	10	2		1		2	22
Delaware			4	3			7	2	1				17
Florida	37	42	56	49	35	71	75	93	72	59	42	45	676
Georgia	12	73	96	179	302	346	381	419	245	238	90	62	2,452
Illinois	5	18		2	12	6	20	6	6	2	1	34	112
Iowa									1	1			2
Kansas		1					8	3	2				14
Louisiana	23	21	33	55	65	80	94	127	134	86	74	36	828
Maryland		1		3	3	6	8	9	11	8	1	2	52
Massachusetts				2		3	1	2		3			11
Michigan	1				1	1	2	2	1				8
Mississippi	2,481	2,681	3,196	4,019	5,975	7,701	9,350	11,727	10,152	7,473	4,397	2,567	[1]71,950
Montana									1				1
New Jersey						1	3	2	5	1	2	2	16
New Mexico					2	1	2	2			6	1	14
New York	3	3	3	5	7	7	19	6	37	38	8	3	139
Ohio					1	2	4	1	7	1		1	17
Oklahoma	73	42	61	112	123	187	288	373	347	236	105	62	2,009
Pennsylvania		1	2	5	4	2	2	2	6	3	2	1	30
Tennessee	13	75	64	56	69	167	157	151	401	140	58	29	1,380
Texas	349	448	347	919	1,225	1,382	1,694	1,435	1,500	1,010	723	470	11,502
Virginia	51	69	91	89	124	252	306	324	278	148	81	25	1,838
Washington				1				1					2

[1] Includes 231 cases for which the month is not given.

Malaria—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	5	7		15	8	20	30	41	32	24	12	10	204
Arkansas	12	17	5	18	39	77	76	78	92	93	50	89	646
California	2		2	2	3	3	3	5	2	4	3		29
Colorado					1								1
Connecticut			1			2	1						4
Florida	9	5	10	6	16	22	29	36	24	23	20	9	209
Illinois	3	2		1	1	9	10	11	11	4	5	4	61
Indiana				1	1		1	1		2			8
Iowa			1	1									2
Kansas						1	1		2	2			6
Kentucky	6	1	1	1	4	3	4	4	1	10	4	2	41
Louisiana	16	9	9	15	19	30	36	37	38	17	15	11	252
Maine								1					1
Maryland							1						1
Massachusetts			2				1	1	1		1		6
Michigan							1						1
Missouri	10	4	4	5	11	15	24	21	33	23	12	9	171
Nebraska										1			1
New Jersey				1			1		1				3
New York			2	1	2	1		5			2		13
North Carolina	8	2	4	4	9	20	12	20	18	12	10	4	123
Ohio		1	1		1		1	2	2			1	9
Oklahoma	2	2	21	4	2	13	11	14	9	6	7	5	96
Oregon	1									1			2
Pennsylvania		1		1	2								4
Rhode Island	1												1
Tennessee	7	3	4	6	10	15	21	21	33	22	8	9	159
Texas	7	6	8	14	17	24	26	34	10	14	14	18	192
Virginia			2	2	1	2	1	9	9	4	4		34
Washington				1									1
West Virginia				1									1

Malaria—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	3,302	1.34	204	0.08	16.2
Arizona	408,000	1	.00	0		
Arkansas	1,853,000	3,944	2.13	646	.35	6.1
California	4,021,000	77	.02	29	.01	2.7
Colorado	1,019,000			1	.00	
Connecticut	1,531,000	22	.01	4	.00	5.5
Delaware	235,000	17	.07	0		
Florida	1,091,000	676	.62	209	.19	3.2
Georgia	3,058,000	2,452	.80	285	.09	8.6
Illinois	6,965,000	112	.02	61	.01	1.8
Indiana	3,060,000			8	.00	
Iowa	2,506,000	2	.00	2	.00	1.0
Kansas	1,814,000	14	.01	6	.00	2.3
Kentucky	2,488,000			41	.02	
Louisiana	1,879,000	828	.44	252	.13	3.3
Maine	783,000			1	.00	
Maryland	1,537,000	52	.03	1	.00	52.0
Massachusetts	4,128,000	11	.00	6	.00	1.8
Michigan	4,155,000	8	.00	1	.00	8.0
Mississippi	[1] 1,791,000	71,950	40.18	411	.23	175.1
Missouri	3,467,000			171	.05	
Montana	647,000	1	.00	0		
Nebraska	1,355,000			1	.00	
New Jersey	3,506,000	16	.00	3	.00	5.3
New Mexico	379,000	14	.04			
New York	11,106,000	139	.01	13	.00	10.7
North Carolina	2,759,000			123	.04	
Ohio	6,322,000	17	.00	9	.00	1.9
Oklahoma	2,239,000	2,009	.90	96	.04	20.9
Oregon	846,000			2	.00	
Pennsylvania	9,318,000	30	.00	4	.00	7.5
Rhode Island	639,000			1	.00	
Tennessee	2,425,000	1,380	.57	159	.07	8.7
Texas	5,098,000	11,502	2.26	192	.04	59.9
Virginia	2,449,000	1,838	.75	34	.01	54.1
Washington	1,478,000	2	.00	1	.00	2.0
West Virginia	1,601,000			1	.00	

[1] Population Jan. 1, 1920.

Measles—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	7	76	117	164	189	144	75	41	6	13	10	15	27	877
Arizona	5	4	19	21	27	21	19	10	2	1	1	5	3	133
Arkansas	7	120	254	361	449	313	139	34	7	9	13	15	25	1,939
California	7	1,629	3,144	2,866	2,259	1,830	1,287	404	146	169	191	120	185	14,230
Colorado	7	102	262	373	489	581	232	29	9	9	8	12	23	2,129
Connecticut	7	705	753	830	902	932	550	258	102	50	215	395	542	6,234
Delaware	5	11	27	34	33	42	46	9	5	1	7	3	7	225
District of Columbia	7	43	68	69	90	111	130	65	9	6	9	12	16	628
Florida	7	54	99	142	118	91	35	10	6	8	2	14	10	584
Georgia	4	98	224	268	218	120	66	26	19	25	11	23	48	1,146
Idaho	4	23	13	27	35	73	20	11	6	3	7	9	19	246
Illinois	7	2,154	2,296	2,659	4,717	4,854	2,435	926	205	120	205	542	921	22,034
Indiana	7	634	761	704	999	824	584	190	60	30	62	126	159	5,133
Iowa	7	160	161	140	144	183	52	15	6	4	3	5	46	919
Kansas	7	325	548	824	862	915	481	74	20	17	61	46	98	4,271
Kentucky	2	438	451	585	535	365	214	143	48	92	23	173	360	3,427
Louisiana	7	57	115	67	98	80	64	33	18	16	17	29	30	624
Maine	4	71	108	87	30	80	66	64	26	11	18	50	22	633
Maryland	7	555	707	1,174	1,371	1,500	950	309	78	37	57	163	340	7,241
Massachusetts	7	2,335	2,952	3,010	3,863	4,159	2,985	1,037	271	201	562	1,059	1,320	23,754
Michigan	7	675	589	1,045	2,738	2,487	1,484	519	127	99	243	183	351	10,540
Minnesota	7	458	549	515	636	584	707	233	52	21	25	38	118	3,936
Mississippi	7	441	987	960	964	476	241	158	99	118	98	166	114	4,822
Missouri	2	133	486	935	817	683	308	98	40	8	13	18	17	3,556
Montana	7	48	80	195	218	154	91	36	14	6	12	7	25	886
Nebraska	7	74	293	285	374	262	87	25	9	13	16	11	17	1,466
Nevada	3	12	2	2	2	13	2	2	1	2	2	3	1	44
New Hampshire	5	227	203	207	348	308	354	178	11	7	18	55	31	1,947
New Jersey	7	1,426	1,999	2,740	3,891	4,458	2,453	654	129	65	131	344	539	18,829
New Mexico	5	124	181	215	183	170	110	29	4	12	8	78	52	1,166
New York	7	5,618	6,660	9,023	9,541	11,013	7,442	2,948	606	276	588	762	1,817	56,204
North Carolina	5	711	670	904	780	868	457	172	87	83	104	110	195	5,141
North Dakota	7	41	52	64	81	108	56	28	18	6	22	42	57	575
Ohio	7	1,048	1,250	2,298	3,268	3,587	2,654	765	294	114	300	365	472	16,415
Oklahoma	2	87	69	86	53	47	31	1	2	-----	-----	2	3	381
Oregon	7	61	54	108	265	174	80	25	14	12	26	16	34	869
Pennsylvania	7	3,050	4,432	6,157	7,282	7,730	5,103	1,871	796	576	1,611	1,832	2,600	43,040
Rhode Island	7	55	88	159	343	252	106	50	10	10	6	19	23	1,121
South Dakota	7	80	92	96	160	283	164	79	14	9	8	10	16	1,011
Tennessee	2	158	273	195	427	352	191	54	25	13	20	8	9	1,725
Texas	6	127	457	698	475	270	292	139	25	16	9	22	64	2,594
Utah	5	21	52	97	166	204	164	107	54	25	27	26	17	960
Vermont	7	128	115	329	311	285	233	114	34	31	47	68	83	1,778
Virginia	7	1,589	3,161	3,490	2,792	1,694	830	378	118	85	96	249	311	14,793
Washington	7	334	465	471	418	370	318	145	44	20	23	39	45	2,692
West Virginia	7	184	276	354	482	417	291	103	51	19	33	45	88	2,343
Wisconsin	7	1,112	1,798	1,908	1,559	1,326	1,160	446	181	137	305	377	492	10,801
Wyoming	7	24	84	103	90	94	75	11	3	7	18	26	11	546

Measles—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	75	197	139	91	59	23	16	20	6	20	6	14	666
Arizona	290	185	292	171	396	46	13	2	5	1	5	3	1,409
Arkansas	175	110	146	104	110	78	20	18	2	3	6	6	778
California	185	186	386	553	298	258	151	64	74	57	53	131	2,396
Colorado	31	19	8	28	48	33	35	5	18	8	13	30	276
Connecticut	231	259	632	779	985	1,049	358	47	31	125	261	787	5,544
Delaware	7	2	7	38	30	41	28	8	3	1	1	36	202
District of Columbia	44	40	124	194	151	105	68	13	8	8	13	25	793
Florida	10	12	34	20	13	3	1	2	5	1	7	19	127
Georgia	26	12	113	92	88	174	7	2	10	5	5	14	548
Idaho	8	33	66	25	10	8	------	------	2	7	3	3	165
Illinois	1,575	2,664	4,615	5,985	6,237	4,010	982	169	151	273	682	868	28,211
Indiana	572	671	507	531	531	650	164	31	14	45	134	243	4,093
Iowa	10	11	17	37	41	17	5	1	7	11	16	77	250
Kansas	87	32	19	25	11	18	35	59	62	47	32	23	450
Kentucky	77	9	13	18	44	16	5	7	10	5	10	24	238
Louisiana	20	10	5	8	10	7	3	3	------	5	6	8	85
Maine	68	19	50	85	24	25	33	22	4	3	17	13	363
Maryland	177	258	161	155	146	302	159	66	47	84	529	1,183	3,267
Massachusetts	1,321	2,204	2,747	3,846	3,756	3,094	1,037	338	269	1,300	3,321	5,583	28,816
Michigan	707	692	782	1,039	2,331	2,359	456	109	71	160	411	1,215	10,332
Minnesota	80	137	204	88	189	141	22	13	10	18	24	35	961
Mississippi	302	417	788	605	547	202	168	108	180	105	183	1,209	[1] 5,077
Missouri	30	63	59	79	142	61	39	25	8	22	19	50	597
Montana	31	107	139	97	66	6	1	3	5	3	16	12	486
Nebraska	8	7	7	20	8	9	4	8	2	7	5	11	96
Nevada	4	1	------	------	------	------	1	------	------	------	------	2	8
New Hampshire	110	90	69	45	194	172	78	6	1	3	5	10	783
New Jersey	484	617	1,060	1,422	2,109	1,589	531	141	72	161	654	1,906	10,746
New Mexico	124	65	229	106	42	21	1	3	2	2	1	2	598
New York	1,022	1,577	2,629	3,256	3,676	3,807	1,400	469	288	1,164	3,007	7,311	29,606
North Carolina	117	96	276	97	116	36	15	17	15	32	80	105	1,002
North Dakota	28	4	9	16	13	3	1	9	1	6	10	14	114
Ohio	390	560	959	1,258	1,991	2,135	507	117	100	315	1,078	4,637	14,047
Oklahoma	48	47	91	29	20	15	5	4	10	10	9	16	304
Oregon	21	17	21	16	13	17	10	5	9	16	21	24	190
Pennsylvania	2,356	3,195	5,524	7,289	8,159	5,601	1,630	540	327	596	2,126	4,387	41,730
Rhode Island	23	61	58	51	93	63	73	26	21	75	421	1,385	2,350
South Dakota	15	6	10	4	12	10	8	7	3	1	4	10	90
Tennessee	116	231	86	264	438	169	46	14	16	14	7	155	1,556
Texas	349	481	342	209	162	67	24	6	3	1	4	4	1,652
Utah	43	39	12	12	28	41	25	23	14	26	18	24	305
Vermont	17	31	56	40	69	210	111	22	14	6	13	41	630
Virginia	505	529	681	998	1,305	927	301	113	146	226	286	499	6,516
Washington	66	39	39	22	25	32	11	4	7	12	22	68	347
West Virginia	136	149	177	481	628	338	65	21	17	2	90	267	2,371
Wisconsin	1,156	1,886	2,601	2,440	1,718	1,477	568	310	197	235	392	747	13,727
Wyoming	5	8	30	53	23	------	1	2	1	2	2	2	129

[1] Includes 263 cases for which the month is not given.

Measles—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	7	2	4		4								20
Arizona	2	9	1			1					1		14
Arkansas	8	11	11	7	3	6	2	3	3	1			55
California	1	3	4	4	3	5	4	2			1	1	28
Colorado		1		1		1		1	1				5
Connecticut	2		6	3	2	6	1	1		1	3	12	37
Delaware				1					1			1	3
District of Columbia				2		1				1			4
Florida	1	1	1	2	2						1		8
Idaho	1												1
Illinois	9	20	36	29	49	21	15	6	4	6	3	14	212
Indiana	6	9	9	10	9	8	3	1	1			3	59
Iowa	2	2	2		1			1	1	1			10
Kansas					1		1		1		1		4
Kentucky	2	2	1	2				4		1		6	18
Louisiana			1	1	1	1		1	1	1			7
Maine		1	1	1	1	2	1	1	1	1		1	11
Maryland		3	7	1	1	1	2		1		3	4	23
Massachusetts	23	25	37	34	38	24	16	9	6	9	38	74	333
Michigan	2	4	3	10	14	13	5	1		1	4	12	69
Minnesota	2	2	3	2	2		1	1	1		2		16
Missouri	1	2	1	5			1	1	1			1	13
Montana			1	2									3
Nebraska	6	5	4	6	3		1		1				26
Nevada	1												1
New Hampshire			3	1	1		1						6
New Jersey	9	9	12	17	17	15	14	6	2	3	4	11	119
New York	4	8	14	27	42	51	29	11	9	5	27	54	281
North Carolina	1	2	5	1								3	12
North Dakota	1												1
Ohio	2	2	12	9	4	3	1	2	3	2	6	35	81
Oklahoma	1	1	3		1								6
Pennsylvania	25	42	45	67	69	64	23	34	15	4	29	42	459
Rhode Island	2	1	4	2	4	4	2		1	2	2	9	33
South Dakota	1												1
Tennessee	2	3	3	5	7	9	7	3	3		2	5	49
Texas	9	6	11	12	14	3	3	1	1			2	62
Virginia	9	17	10	4	8	5	6	3	3	2	2	5	74
Washington	1	1				1							3
West Virginia	5	5	4	9	12	5	2	1	1	2		4	50
Wisconsin	2	4	8	5	13	7	8	3	1	2	4	3	60

Measles—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	7	877	.37	666	.27	20	.01	3.0
Arizona	408,000	5	133	.33	1,409	3.45	14	.03	1.0
Arkansas	1,853,000	7	1,939	1.09	778	.42	55	.03	7.1
California	4,021,000	7	14,230	3.96	2,396	.60	28	.01	1.2
Colorado	1,019,000	7	2,129	2.22	276	.27	5	.00	1.8
Connecticut	1,531,000	7	6,234	4.38	5,544	3.62	37	.02	.7
Delaware	235,000	5	225	.99	202	.86	3	.01	1.5
District of Columbia	498,000	7	628	1.43	793	1.59	4	.01	.5
Florida	1,091,000	7	584	.58	127	.12	8	.01	6.3
Georgia	3,058,000	4	1,146	.39	548	.18	11	.00	2.0
Idaho	492,000	4	246	.54	165	.34	1	.00	.6
Illinois	6,965,000	7	22,034	3.33	28,211	4.05	212	.03	.8
Indiana	3,060,000	7	5,133	1.73	4,093	1.34	59	.02	1.4
Iowa	2,506,000	7	919	.38	250	.10	10	.00	4.0
Kansas	1,814,000	7	4,271	2.40	450	.25	4	.00	.9
Kentucky	2,488,000	2	3,427	1.39	238	.10	18	.01	7.6
Louisiana	1,879,000	7	624	.34	85	.05	7	.00	8.2
Maine	783,000	4	633	.82	363	.46	11	.01	3.0
Maryland	1,537,000	7	7,241	4.92	3,267	2.13	23	.01	.7
Massachusetts	4,128,000	7	23,754	6.05	28,816	6.98	333	.08	1.2
Michigan	4,155,000	7	10,540	2.77	10,332	2.49	69	.02	.7
Minnesota	2,564,000	7	3,936	1.62	961	.37	16	.01	1.7
Mississippi	[1] 1,791,000	7	4,822	2.69	5,077	2.84	21	.01	.4
Missouri	3,467,000	2	3,556	1.03	597	.17	13	.00	2.2
Montana	647,000	7	886	1.54	486	.75	3	.00	.6
Nebraska	1,355,000	7	1,466	1.12	96	.07	26	.02	27.1
Nevada	[1] 77,000	3	44	.57	8	.10	1	.01	12.5
New Hampshire	450,000	5	1,947	4.37	783	1.74	6	.01	.8
New Jersey	3,506,000	7	18,829	5.79	10,746	3.06	119	.03	1.1
New Mexico	379,000	5	1,166	3.16	598	1.58	--------	--------	--------
New York	11,106,000	7	56,294	5.32	29,606	2.67	281	.03	.9
North Carolina	2,759,000	5	5,141	1.97	1,002	.36	12	.00	1.2
North Dakota	686,000	7	575	.87	114	.17	1	.00	.9
Ohio	6,322,000	7	16,415	2.78	14,047	2.22	81	.01	.6
Oklahoma	2,239,000	2	381	.18	304	.14	6	.00	2.0
Oregon	846,000	7	869	1.09	190	.22	0	--------	--------
Pennsylvania	9,318,000	7	43,040	4.85	41,730	4.48	459	.05	1.1
Rhode Island	639,000	7	1,121	1.83	2,350	3.68	33	.05	1.4
South Dakota	666,000	7	1,011	1.57	90	.14	1	.00	1.1
Tennessee	2,425,000	2	1,725	.72	1,556	.64	49	.02	3.1
Texas	5,098,000	6	2,594	.54	1,652	.32	62	.01	3.8
Utah	492,000	5	960	2.08	305	.62	0	--------	--------
Vermont	[1] 352,000	7	1,778	5.05	630	1.79	0	--------	--------
Virginia	2,449,000	7	14,793	6.30	6,516	2.66	74	.03	1.1
Washington	1,478,000	7	2,692	1.94	347	.23	3	.00	.9
West Virginia	1,601,000	7	2,343	1.56	2,371	1.48	50	.03	2.1
Wisconsin	2,801,000	7	10,801	4.03	13,727	4.90	60	.02	.4
Wyoming	222,000	7	546	2.70	129	.58	0	--------	--------

[1] Population Jan. 1, 1920.

Mumps—Average number of cases reported for the years 1922–1924, by months

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	52	79	104	138	141	74	39	18	20	41	29	52	787
Arizona	5	10	27	25	11	5	2	1	4	13	22	32	157
Arkansas	21	30	54	60	61	50	21	14	44	11	11	13	390
California	209	235	266	259	266	166	72	51	74	151	171	189	2,109
Colorado	189	84	244	201	164	59	35	11	24	57	134	137	1,339
Connecticut	200	286	373	295	212	144	73	24	16	56	83	130	1,892
Delaware	3	3	10	6	31	5	3	2	1	2	1	4	71
Florida	7	14	28	35	50	17	6	3	1	5	26	19	211
Georgia	27	33	80	81	56	29	12	6	10	26	26	21	407
Idaho	-----	2	1	2	2	-----	1	-----	-----	-----	-----	-----	8
Illinois	857	966	1,232	1,116	952	690	250	116	129	239	433	712	7,692
Indiana	-----	-----	-----	-----	-----	-----	6	12	-----	-----	36	41	[1] 95
Iowa	86	117	156	110	57	16	4	2	5	12	27	74	666
Kansas	346	461	615	586	386	175	88	41	54	116	256	425	3,549
Kentucky	39	53	99	46	35	8	11	4	4	2	10	4	[2] 315
Louisiana	2	4	5	5	7	5	1	1	-----	1	1	3	35
Maine	54	57	79	79	107	58	21	21	10	39	85	129	739
Maryland	173	280	368	338	392	239	63	30	15	47	57	72	2,074
Massachusetts	827	884	1,159	1,069	908	645	248	89	92	199	418	598	7,166
Michigan	365	426	717	756	695	425	123	40	34	87	142	226	4,036
Minnesota	3	3	6	14	2	1	1	1	-----	1	-----	2	[2] 34
Mississippi	124	249	372	456	383	258	167	147	146	178	276	524	3,280
Missouri	73	138	200	255	653	111	47	22	13	15	45	61	1,633
Montana	36	18	47	29	15	7	2	4	1	4	7	2	172
Nebraska	66	103	112	72	75	39	14	8	5	20	9	21	544
Nevada	2	4	6	2	1	1	1	-----	-----	1	-----	-----	18
New Hampshire	25	15	9	4	8	3	1	-----	2	3	19	10	99
New Mexico	25	32	31	32	33	10	4	2	4	8	8	17	206
New York	1,392	1,519	1,857	1,882	1,729	1,263	536	211	187	339	754	1,089	12,758
North Dakota	2	1	37	7	-----	1	-----	1	1	1	2	9	[2] 62
Ohio	320	606	1,020	999	900	439	134	59	87	141	239	359	5,303
Oklahoma	3	-----	18	17	11	7	3	1	2	1	1	-----	64
Oregon	26	22	23	28	24	16	12	4	9	9	12	15	200
Pennsylvania	1,217	1,438	1,840	1,802	1,484	923	370	157	174	407	794	1,105	11,711
Rhode Island	17	29	39	35	13	8	8	4	2	4	3	5	167
South Dakota	23	19	1	7	13	6	8	3	3	1	17	51	[2] 152
Texas	48	154	152	166	485	78	27	26	61	32	39	116	1,384
Utah	46	104	78	82	37	58	12	8	6	66	111	147	[1] 755
Vermont	104	74	80	77	66	55	27	24	14	17	30	64	632
Washington	187	208	206	141	128	87	52	21	35	60	108	148	1,381
Wisconsin	42	120	36	52	73	55	14	11	14	63	121	255	856
Wyoming	2	6	22	24	34	12	4	2	8	9	6	2	131

[1] One year only. [2] Two years only.

Mumps—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	313	303	210	239	189	73	37	25	29	76	91	124	1,709
Arizona	96	77	28	42	123	7	-----	1	6	15	76	52	523
Arkansas	147	195	155	162	102	90	52	43	14	12	7	11	990
California	654	824	1,203	1,824	1,442	852	382	212	364	493	755	985	9,990
Colorado	430	466	543	372	289	125	40	13	7	18	27	5	2,335
Connecticut	178	170	273	126	85	90	30	7	3	62	33	37	1,094
Delaware	20	15	13	18	22	4	8	-----	-----	2	-----	-----	102
Florida	121	106	380	318	291	122	20	16	10	11	24	56	1,475
Georgia	144	328	292	372	389	92	65	37	46	35	52	53	1,905
Idaho	50	68	-----	1	-----	2	-----	-----	1	2	-----	1	125
Illinois	1,092	1,375	1,537	1,037	767	447	185	60	54	79	213	230	7,076
Indiana	36	40	39	10	48	3	5	-----	-----	-----	-----	-----	181
Iowa	47	60	65	66	44	44	22	9	10	22	46	112	547
Kansas	1,766	1,845	1,882	944	606	259	100	30	23	26	38	59	7,578
Kentucky	59	25	24	28	14	11	11	2	2	2	5	-----	183

Mumps—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Louisiana	------	1	10	4	2	2	2	2	1	3	1	1	29
Maine	438	669	670	406	463	238	83	26	30	43	70	103	3,239
Maryland	156	267	373	380	343	249	99	39	31	75	209	359	2,580
Massachusetts	422	453	420	335	300	161	65	34	38	84	165	197	2,674
Michigan	499	330	436	381	280	228	63	30	19	54	53	51	2,433
Mississippi	1,997	2,429	2,388	2,091	1,619	868	741	564	379	275	419	643	[1] 14,517
Missouri	111	316	453	298	287	145	62	37	17	41	55	100	1,922
Montana	40	60	104	83	87	48	39	26	56	267	502	389	1,701
Nebraska	19	37	90	39	79	23	22	9	6	3	4	14	345
Nevada	------	3	------	------	1	2	1	------	------	------	------	1	8
New Hampshire	35	32	17	24	8	1	1	1	4	5	36	1	165
New Mexico	23	49	99	49	48	19	10	8	14	8	7	16	350
New York	1,105	1,358	1,546	1,274	1,021	776	329	141	138	190	413	511	8,802
North Dakota	61	60	50	45	48	19	15	10	12	30	173	125	648
Ohio	667	746	859	557	327	226	80	43	52	49	106	65	3,777
Oklahoma	202	93	201	105	71	46	8	6	9	4	15	15	775
Oregon	90	75	149	171	83	66	30	12	47	105	123	139	1,090
Pennsylvania	2,302	2,852	3,276	2,516	1,575	824	232	72	74	175	373	460	14,731
Rhode Island	20	5	4	11	9	8	5	------	1	7	4	7	81
South Dakota	8	2	11	5	4	6	1	1	2	49	111	180	380
Tennessee	1	3	3	6	4	9	8	1	1	------	------	7	43
Texas	476	625	375	315	277	115	50	23	9	13	13	121	2,412
Utah	179	133	287	280	116	51	27	11	23	8	17	22	1,154
Vermont	301	331	379	221	223	201	54	36	92	71	100	21	2,030
Washington	468	662	656	538	375	221	106	49	41	77	157	259	3,609
Wisconsin	1,092	1,142	1,550	1,727	777	577	204	96	98	139	263	575	8,240
Wyoming	5	27	33	46	32	18	8	8	6	3	5	16	207

[1] Includes 104 cases for which the month is not given.

Mumps—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	2	1	1	------	------	------	------	1	------	------	1	------	6
California	3	------	------	------	------	2	------	------	------	------	------	------	5
Connecticut	------	------	------	1	------	------	------	------	------	------	------	------	1
Delaware	1	------	------	------	------	------	------	------	------	------	------	------	1
Florida	------	------	------	2	1	------	1	------	------	------	------	------	4
Illinois	1	1	2	2	1	------	------	------	------	------	------	------	7
Iowa	------	------	------	------	1	1	1	1	------	------	------	1	5
Kansas	1	------	------	------	------	------	------	------	------	1	------	------	2
Kentucky	------	------	1	------	------	------	------	------	------	------	------	------	1
Louisiana	------	------	1	------	------	------	------	------	------	------	------	------	1
Maine	------	1	------	------	------	------	1	------	------	------	------	------	2
Maryland	------	------	------	1	------	------	2	------	------	------	------	------	3
Massachusetts	1	------	1	------	1	------	------	------	------	1	------	------	4
Michigan	------	------	5	------	------	------	2	------	------	1	------	------	8
Minnesota	------	1	------	------	------	------	------	------	------	------	------	------	1
Missouri	------	------	------	------	1	1	1	------	------	------	------	------	3
Montana	------	------	------	------	------	------	------	------	------	------	1	------	1
Nebraska	------	------	2	------	------	------	------	------	------	------	------	1	3
Nevada	------	------	------	------	1	------	------	------	------	------	------	------	1
New York	2	2	2	2	1	------	1	------	------	1	1	------	12
North Carolina	------	1	------	1	1	------	------	1	1	------	2	1	8
Ohio	1	2	1	1	------	1	1	------	------	------	1	------	8
Oregon	1	------	1	------	------	------	------	------	------	1	------	------	3
Rhode Island	------	------	------	------	------	------	1	1	------	------	------	------	2
South Dakota	------	1	------	------	------	------	------	------	------	------	------	------	1
Tennessee	------	1	2	------	------	------	------	------	------	------	1	1	5
Texas	------	------	------	1	1	------	------	------	------	------	------	------	2
Utah	1	------	------	------	------	------	------	------	------	------	------	------	1
West Virginia	------	------	------	------	1	------	------	------	------	------	------	------	1

Mumps—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1925; average and indicated annual rates based on the years 1922–1924

State	Estimated population July 1, 1925	Average, 1922–1924		1925				
		Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	787	.32	1,709	.69	6	.00	284.8
Arizona	408,000	157	.41	523	1.28	0	------	------
Arkansas	1,853,000	390	.21	990	.53	0	------	------
California	4,021,000	2,109	.55	9,990	2.48	5	.01	1,998.0
Colorado	1,019,000	1,339	1.35	2,335	2.29	0	------	------
Connecticut	1,531,000	1,892	1.28	1,094	.71	1	.00	1,094.0
Delaware	235,000	71	.31	102	.43	1	.00	102.0
Florida	1,091,000	211	.20	1,475	1.35	4	.00	368.7
Georgia	3.058,000	407	.14	1,905	.62	5	.00	381.0
Idaho	492,000	8	.02	125	.25	0	------	------
Illinois	6,965,000	7,692	1.13	7,076	1.02	7	.00	1,010.9
Indiana	3,060,000	[1] 95	.03	181	.06	0	------	------
Iowa	2,506,000	666	.27	547	.22	5	.00	109.4
Kansas	1,814,900	3,549	1.97	7,578	4.18	2	.00	3,789.0
Kentucky	2,488,000	[2] 315	.13	183	.07	1	.00	183.0
Louisiana	1,879,000	35	.02	29	.02	1	.00	29.0
Maine	783,000	739	.95	3,239	4.14	2	.00	1,619.5
Maryland	1,537,000	2,074	1.38	2,580	1.68	3	.00	860.0
Massachusetts	4,128,000	7,166	1.78	2,674	.65	4	.00	668.5
Michigan	4,155,000	4,036	1.01	2,433	.59	8	.00	304.1
Minnesota	2,564,000	[2] 34	.01	------	------	1	.00	------
Mississippi	[3] 1,791,000	3,280	1.83	14,517	8.11	------	------	------
Missouri	3,467,000	1,633	.47	1,922	.55	3	.00	640.7
Montana	647,000	172	.28	1,701	2.63	1	.00	1,701.0
Nebraska	1,355,000	544	.41	345	.25	3	.00	115.0
Nevada	[3] 77,000	18	.23	8	.10	1	.01	8.0
New Hampshire	450,000	99	.22	165	.37	0	------	------
New Mexico	379,000	206	.55	350	.92	------	------	------
New York	11,106,000	12,758	1.18	8,802	.79	12	.00	733.5
North Carolina	2,759,000	------	------	------	------	8	.00	------
North Dakota	686,000	[2] 62	.09	648	.94	0	------	------
Ohio	6,322,000	5,303	.87	3,777	.60	8	.00	472.1
Oklahoma	2,239,000	64	.03	775	.35	0	------	------
Oregon	846,000	200	.24	1,090	1.29	3	.00	363.3
Pennsylvania	9,318,000	11,711	1.29	14,731	1.58	0	------	------
Rhode Island	639,000	167	.27	81	.13	2	.00	40.5
South Dakota	666,000	[2] 152	.23	380	.57	1	.00	380.0
Tennessee	2,425,000	------	------	43	.02	5	.00	8.6
Texas	5,098,000	1,384	.28	2,412	.47	2	.00	1,206.0
Utah	492,000	[1] 755	1.58	1,154	2.35	1	.00	1,154.0
Vermont	[3] 352,000	632	1.80	2,030	5.77	0	------	------
Washington	1,478,000	1,381	.96	3,609	2.44	0	------	------
West Virginia	1,601,000	------	------	------	------	1	.00	------
Wisconsin	2,801,000	856	.31	8,240	2.94	0	------	------
Wyoming	222,000	131	.62	207	.93	0	------	------

[1] One year only. [2] Two years only. [3] Population Jan. 1, 1920.

Pellagra—Cases reported, 1925

State	Jan.	Feb.	Mar	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	29	18	53	105	189	185	129	136	85	119	83	17	1,148
Arkansas	19	17	48	62	97	150	101	90	41	28	29	21	706
California	2		6	6	9	1	7	5	4	8	7	8	63
District of Columbia							1					2	3
Illinois		1			2				3				6
Kansas	3		1				3	3	2	1	1	3	17
Louisiana	10	9	28	60	83	94	43	30	54	34	56	37	538
Massachusetts		1		1		2	3	8	1	3			19
Minnesota							1		1				2
Mississippi	169	299	496	926	1,432	1,749	1,246	848	520	381	333	214	[1] 8,646
New Mexico		1	1			2	2		1	5	1	1	14
North Dakota						1							1
Oklahoma	10	11	17	26	41	52	47	47	17	16	20	9	313
Pennsylvania			1	1			1	2	2		1	1	9
Virginia	5	8	5	22	24	28	38	23	19	11	12	13	208
Washington						1				1			2

[1] Includes 33 cases for which the month is not given.

Pellagra—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	23	10	33	31	39	43	38	52	35	41	40	36	421
Arizona	1	1	2			1	1		1	1			8
Arkansas	12	10	9	17	26	62	27	33	27	17	21	52	313
California	3	1	7		1	4	4	7	9	6	2	3	47
Colorado					1		1			1			3
District of Columbia												2	2
Florida	5	8	11	16	12	10	9	11	7	16	13	7	125
Illinois				1		1		1	2				5
Indiana							1		1				2
Iowa						1							1
Kansas			2			1		3	2	1	1		10
Kentucky		4	2	4	4	2	9	5	9	6	10	14	69
Louisiana	9	12	22	28	52	47	51	43	20	23	19	17	343
Maine											1		1
Maryland	1				1		1	1	2			1	7
Massachusetts		1	1			1		3	1	2	1		10
Michigan						1			1	1			3
Minnesota							1		1				2
Missouri		1	1	3		1	3	4	1	2	2	1	19
Nebraska					1						1		2
New Jersey				1	1	2	1		1				6
New York	1	1			1		3	1	3	1	1	1	13
North Carolina	17	23	24	29	38	32	55	47	33	30	35	35	398
Ohio			1	1	1	2	1			2	2	1	11
Oklahoma	4	17	8	6	7	11	16	11	12	7	11	15	125
Oregon						1		1					2
Rhode Island			1	1		1	1	1					5
Tennessee	19	22	26	21	31	38	42	45	31	30	32	38	375
Texas	26	21	28	30	53	64	75	42	35	46	50	75	545
Utah								1					1
Vermont											1	1	2
Virginia	11	4	3	4	10	10	9	12	6	11	10	5	95
Washington						1				1			2
West Virginia			2					1	1		1	1	6
Wisconsin	1												1

Pellagra—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	1,148	0.47	421	0.17	2.7
Arizona	408,000			8	.02	
Arkansas	1,853,000	706	.38	313	.17	2.3
California	4,021,000	63	.02	47	.01	1.3
Colorado	1,019,000			3	.00	
District of Columbia	498,000	3	.01	2	.00	1.5
Florida	1,091,000			125	.11	
Georgia	3,058,000			366	.12	
Illinois	6,965,000	6	.00	5	.00	1.2
Indiana	3,060,000			2	.00	
Iowa	2,506,000			1	.00	
Kansas	1,814,000	17	.01	10	.01	1.7
Kentucky	2,488,000			69	.03	
Louisiana	1,879,000	538	.29	343	.18	1.6
Maine	783,000			1	.00	
Maryland	1,537,000			7	.00	
Massachusetts	4,128,000	19	.00	10	.00	1.9
Michigan	4,155,000			3	.00	
Minnesota	2,564,000	2	.00	2	.00	1.0
Mississippi	[1] 1,791,000	8,646	4.83	561	.31	15.4
Missouri	3,467,000			19	.01	
Nebraska	1,355,000			2	.00	
New Jersey	3,506,000			6	.00	
New Mexico	379,000	14	.04			
New York	11,106,000			13	.00	
North Carolina	2,759,000			398	.14	
North Dakota	686,000	1	.00	0		
Ohio	6,322,000			11	.00	
Oklahoma	2,239,000	313	.14	125	.06	2.5
Oregon	846,000			2	.00	
Pennsylvania	9,318,000	9	.00			
Rhode Island	639,000			5	.01	
Tennessee	2,425,000			375	.15	
Texas	5,098,000			545	.11	
Utah	492,000			1	.00	
Vermont	[1] 352,000			2	.01	
Virginia	2,449,000	208	.08	95	.04	2.2
Washington	1,478,000	2	.00	2	.00	1.0
West Virginia	1,601,000			6	.00	
Wisconsin	2,801,000			1	.00	

[1] Population Jan. 1, 1920.

Pneumonia (all forms)—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	674	881	810	499	358	109	52	64	61	62	237	431	4,238
California [1]	380	414	337	371	237	225	176	147	150	156	177	417	3,187
Connecticut	422	423	438	338	214	172	76	65	76	173	251	387	3,035
Delaware	59	54	54	31	15	10	8	10	11	26	28	56	362
District of Columbia	173	158	173	146	101	60	34	45	46	76	110	147	1,269
Florida	72	218	146	112	86	63	55	77	70	88	113	48	1,148
Georgia	109	467	552	470	260	96	45	63	47	79	235	332	2,755
Illinois	1,715	1,681	2,100	1,718	1,228	767	451	380	413	687	1,031	3,044	15,215
Kansas	291	356	354	182	80	43	34	47	34	103	151	252	1,927
Louisiana	332	357	303	384	315	116	85	103	170	179	297	350	2,991
Maryland	636	721	728	523	332	168	87	87	86	228	284	430	4,310
Massachusetts [1]	635	798	817	682	504	270	114	76	130	284	519	715	5,544
Michigan	522	597	847	679	528	508	158	137	185	337	496	714	5,708
Minnesota	198	195	335	323	202	98	56	71	45	130	160	226	2,039
Mississippi	2,802	3,516	2,965	1,484	562	221	191	200	225	503	1,263	1,985	[2] 15,962
New Jersey	859	639	706	673	552	351	135	128	169	340	432	620	5,604
New Mexico	75	74	44	26	24	13	9	6	3	9	21	21	325
New York	4,179	3,746	4,036	3,371	2,332	1,671	678	632	858	1,377	1,941	2,850	27,671
Oklahoma	1,001	866	741	384	140	39	17	19	17	63	193	235	3,715
Utah	169	167	126	89	64	39	20	16	23	58	65	106	942

[1] Lobar pneumonia only.
[2] Includes 45 cases for which the month is not given.

Pneumonia (all forms)—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	388	333	422	282	173	84	80	62	70	85	240	328	2,517
Arizona	88	76	92	56	41	36	19	16	28	21	33	17	556
Arkansas	164	217	210	118	112	97	28	33	45	54	110	275	1,463
California	581	441	441	321	254	211	160	173	184	214	280	361	3,621
Colorado	191	143	151	160	87	70	41	40	57	74	110	132	1,256
Connecticut	242	194	236	178	107	72	45	51	59	127	173	177	1,661
Delaware	43	40	40	23	12	8	7	10	10	21	17	37	268
District of Columbia	66	70	91	78	52	31	26	30	28	40	55	77	641
Florida	111	102	99	82	68	56	50	60	50	57	98	155	988
Idaho	47	28	30	12	23	22	10	9	9	5	10	27	241
Illinois	784	765	930	654	489	311	204	200	190	321	567	610	6,025
Indiana	344	448	522	357	184	124	78	100	84	190	266	367	3,061
Iowa	235	294	295	194	149	98	122	62	76	132	143	164	1,964
Kansas	189	174	223	156	54	28	34	30	30	64	99	113	1,194
Kentucky	283	352	364	242	130	83	61	77	73	133	318	211	2,357
Louisiana	344	333	233	217	142	77	79	85	69	109	146	197	2,031
Maine	82	68	85	110	84	39	21	27	31	53	75	93	771
Maryland	349	299	333	284	198	107	52	66	74	131	167	227	2,287
Massachusetts [1]	276	346	347	268	217	108	59	38	59	127	209	294	2,348
Michigan	366	388	446	371	315	169	106	90	123	215	325	380	3,294
Minnesota	180	164	301	287	182	84	52	65	44	122	139	202	1,825
Missouri	553	529	658	421	252	143	128	122	109	185	369	398	3,867
Nebraska	86	59	88	73	33	20	14	15	19	41	41	62	551
Nevada	12	14	17	9	6	4	2	3	3	7	7	7	91
New Hampshire	54	56	77	52	48	20	8	9	14	30	40	63	471
New Jersey	616	493	458	409	357	202	134	126	126	273	347	376	3,917
New York	1,744	1,480	1,691	1,706	1,298	840	474	498	542	865	1,130	1,298	13,564
North Carolina	341	328	367	275	185	81	67	63	111	136	226	297	2,477
North Dakota	51	64	79	63	40	18	28	23	10	39	40	21	476
Ohio	668	800	1,019	846	407	246	160	183	216	410	605	730	6,290
Oklahoma	265	270	257	150	93	86	47	55	62	80	150	204	1,719
Oregon	72	57	78	71	54	44	29	28	23	42	50	62	610
Pennsylvania	1,648	1,675	1,726	1,352	951	592	393	405	465	729	1,081	1,333	12,350
Rhode Island	84	81	122	74	57	34	17	18	22	60	55	93	717
South Dakota	58	56	65	56	43	21	17	5	16	42	29	44	452
Tennessee	306	288	301	198	118	88	69	62	85	109	228	291	2,143
Texas	619	678	544	346	247	148	155	130	85	133	212	397	3,694
Utah	84	63	40	24	24	23	10	11	16	35	28	52	410
Vermont	44	29	47	49	40	16	10	8	14	18	35	50	360
Virginia	261	304	267	173	140	68	41	51	62	110	159	243	1,879
Washington	119	89	81	104	97	64	41	22	43	80	78	88	900
West Virginia	191	198	206	190	99	55	38	53	50	90	138	218	1,535
Wisconsin	239	268	377	281	235	132	89	92	91	161	184	195	2,344
Wyoming	15	18	10	8	12	6	7	8	8	17	18	19	146

[1] Lobar pneumonia only.

Pneumonia (all forms)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	4,238	1.72	2,547	1.03	1.7
Arizona	408,000			556	1.36	
Arkansas	1,853,000			1,463	.79	
California	4,021,000	[1] 3,187	[1] .79	3,624	.90	
Colorado	1,019,000			1,256	1.23	
Connecticut	1,531,000	3,035	1.98	1,661	1.08	1.8
Delaware	235,000	362	1.54	268	1.14	1.4
District of Columbia	498,000	1,269	2.55	644	1.29	2.0
Florida	1,091,000	1,148	1.05	988	.91	1.2
Georgia	3,058,000	2,755	.90	2,335	.76	1.2
Idaho	492,000			241	.49	
Illinois	6,965,000	15,215	2.18	6,025	.87	2.5
Indiana	3,060,000			3,064	1.00	
Iowa	2,506,000			1,964	.78	
Kansas	1,814,000	1,927	1.06	1,194	.66	1.6
Kentucky	2,488,000			2,357	.95	
Louisiana	1,879,000	2,991	1.59	2,031	1.08	1.5
Maine	783,000			771	.98	
Maryland	1,537,000	4,310	2.80	2,287	1.49	1.9
Massachusetts	4,128,000	[1] 5,544	[1] 1.34	[1] 2,348	[1] .57	2.4
Michigan	4,155,000	5,708	1.37	3,294	.79	1.7
Minnesota	2,564,000	2,039	.80	1,825	.71	1.1
Mississippi	[2] 1,791,000	15,962	8.91	1,389	.78	11.5
Missouri	3,467,000			3,867	1.12	
Nebraska	1,355,000			551	.41	
Nevada	[2] 77,000			91	1.18	
New Hampshire	450,000			471	1.05	
New Jersey	3,506,000	5,604	1.60	3,917	1.12	1.4
New Mexico	379,000	325	.86			
New York	11,106,000	27,671	2.49	13,564	1.22	2.0
North Carolina	2,759,000			2,477	.90	
North Dakota	686,000			476	.69	
Ohio	6,322,000			6,290	.99	
Oklahoma	2,239,000	3,715	1.66	1,719	.77	2.2
Oregon	846,000			610	.72	
Pennsylvania	9,318,000			12,350	1.33	
Rhode Island	639,000			717	1.12	
South Dakota	666,000			452	.68	
Tennessee	2,425,000			2,143	.88	
Texas	5,098,000			3,694	.72	
Utah	492,000	942	1.91	410	.83	2.3
Vermont	[2] 352,000			360	1.02	
Virginia	2,449,000			1,879	.77	
Washington	1,478,000			906	.61	
West Virginia	1,601,000			1,535	.96	
Wisconsin	2,801,000			2,344	.84	
Wyoming	222,000			146	.66	

[1] Lobar pneumonia only.

[2] Population Jan. 1, 1920

Poliomyelitis (infantile paralysis)—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	5	2	1	1	----	2	3	8	1	2	2	1	1	24
Arizona	6	----	----	----	----	----	----	----	1	----	----	1	----	2
Arkansas	3	----	2	----	----	----	1	2	4	4	3	----	----	16
California	7	4	2	4	3	4	6	5	10	11	14	8	9	80
Colorado	5	----	----	1	----	1	----	----	2	3	1	----	1	9
Connecticut	7	1	1	1	1	1	1	2	14	18	10	5	2	57
Delaware	3	----	----	----	----	----	----	1	----	----	----	1	----	2
District of Columbia	7	----	----	----	----	----	----	1	2	2	3	1	1	10
Florida	7	----	1	1	1	1	----	1	1	----	1	1	2	10
Georgia	5	1	1	1	1	1	2	1	1	1	1	1	1	13
Idaho	3	----	----	----	----	----	----	1	----	2	4	----	----	7
Illinois	7	5	5	8	4	6	12	16	42	66	51	17	10	242
Indiana	6	1	2	1	----	1	3	3	9	11	8	2	3	44
Iowa	6	1	2	2	----	1	1	1	3	13	11	4	2	41
Kansas	5	2	2	1	1	2	1	3	6	9	2	1	2	32
Louisiana	7	1	1	2	1	2	2	4	1	4	3	1	1	23
Maine	7	1	----	1	----	1	----	1	2	2	3	2	1	11
Maryland	7	2	1	1	2	2	3	11	11	13	12	7	2	67
Massachusetts	7	8	4	5	4	4	4	12	39	45	28	21	10	184
Michigan	7	2	2	3	2	2	3	7	16	16	9	4	4	70
Minnesota	7	1	----	1	1	2	3	10	24	17	14	7	3	83
Mississippi	7	4	2	2	2	3	3	4	2	3	4	6	1	36
Missouri	3	1	1	----	----	1	2	2	1	7	8	5	1	29
Montana	7	----	1	----	1	----	1	1	3	8	2	2	----	19
Nebraska	7	----	----	1	1	----	1	1	5	6	5	2	1	23
Nevada	4	----	----	----	----	1	----	----	----	1	2	----	1	5
New Hampshire	5	----	----	1	1	----	----	1	2	4	2	2	----	13
New Jersey	7	3	2	8	3	2	2	5	16	15	14	7	3	75
New Mexico	5	----	1	----	----	----	----	1	1	----	1	----	1	5
New York	7	8	5	8	7	7	14	38	101	103	157	67	27	542
North Carolina	7	1	1	1	1	2	2	3	3	3	2	3	1	23
North Dakota	6	1	----	1	----	----	1	1	5	2	3	5	1	20
Ohio	7	4	2	3	3	3	4	6	11	13	25	7	4	85
Oregon	7	----	----	1	----	----	----	----	1	1	----	1	1	5
Pennsylvania	7	3	3	4	4	3	3	11	27	49	27	12	6	152
Rhode Island	7	----	1	----	----	----	1	1	2	6	1	1	----	13
South Dakota	7	----	1	1	1	1	1	2	3	6	4	1	1	22
Tennessee	2	----	1	----	1	1	1	1	5	4	2	1	1	18
Texas	2	4	2	1	1	2	5	7	6	5	1	3	5	42
Utah	4	----	----	----	----	----	----	1	1	1	1	----	1	5
Vermont	7	----	----	----	1	----	1	3	2	5	3	1	1	17
Virginia	7	4	4	4	4	3	8	18	20	12	12	8	5	102
Washington	7	1	----	1	1	1	1	1	3	2	3	2	2	18
West Virginia	7	1	1	1	----	1	2	6	6	6	2	2	1	29
Wisconsin	7	3	2	2	3	4	2	6	18	24	15	7	3	81
Wyoming	7	----	----	----	----	----	1	----	1	----	1	----	----	3

Poliomyelitis (infantile paralysis)—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1	------	6	2	5	8	11	22	8	5	5	2	75
Arizona	------	------	------	------	------	8	3	12	8	1	4	1	37
Arkansas	------	------	------	------	------	5	------	------	3	2	------	------	10
California	17	14	11	29	36	79	204	200	105	51	51	24	821
Connecticut	2	1	------	3	1	1	8	14	12	3	3	2	50
Delaware	------	------	------	------	------	3	------	------	1	------	------	------	4
District of Columbia	------	------	1	1	------	------	2	4	4	7	2	1	22
Florida	------	1	------	4	5	9	14	18	1	4	2	1	59
Idaho	------	------	------	1	------	1	1	1	1	5	------	------	10
Illinois	5	9	1	3	4	6	24	49	77	61	12	11	262
Indiana	2	1	2	1	1	------	------	10	8	18	13	2	58
Iowa	------	------	1	3	2	------	8	24	61	59	16	5	179
Kansas	------	------	2	------	1	2	15	38	35	19	6	4	122
Kentucky	1	------	------	------	------	------	2	8	7	57	4	3	82
Louisiana	1	3	------	1	1	1	------	7	4	3	9	1	31
Maine	7	------	1	5	3	1	------	5	3	1	8	------	29
Maryland	4	2	------	2	2	5	6	5	11	11	1	1	50
Massachusetts	9	4	7	2	1	2	11	30	44	31	14	12	167
Michigan	6	8	3	4	6	6	11	11	20	10	13	1	99

Poliomyelitis (infantile paralysis)—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Minnesota	1	1	7	2	2	11	112	317	311	143	17	5	929
Mississippi	1	4	2	3	4	2	4	8	7	6	3	3	47
Missouri	1		2	1		1	14	51	25	20	4	3	122
Montana		2					9	15	7	5		3	41
Nebraska		1	1	1			3	18	39	46	14	2	125
Nevada	10				1	9	1	3		1	2		27
New Hampshire	1	2		2		3	1	1	4	6	1		21
New Jersey	1	2	4	4	3	14	45	50	21	11	6	5	166
New Mexico				2				2	2	3	3		12
New York	16	8	9	11	9	21	118	197	195	132	49	28	793
North Carolina		2		2	1	11	12	28	9	6	5	3	79
North Dakota	3	2	1	1	2	5	18	45	49	21	5	2	154
Ohio	5	2	2	5	2	6	13	56	77	43	9	7	227
Oklahoma	3	3	2	1			6	2	5	9	5	2	38
Oregon	3	5	1			1		3	7	1	2		23
Pennsylvania	4	2		3	2	4	33	50	49	25	5	6	183
Rhode Island				1	1	3	8	10	9	3	2		37
South Dakota	1	1	1	1			2	5	3	19	7	4	44
Texas	6	5		2	2	12	8	3	4	4	4		50
Utah	1					1	1	2	2	2	2		11
Vermont	2	2	11				5	10	16	20	12	3	81
Virginia	3	4	5	2	4	5	18	18	15	11	6	3	94
Washington	12	3	1		1	2	5	23	30	26	11	1	115
West Virginia		1			1	1	4	4	1	4		1	17
Wisconsin	3	6	6	3	3	2	42	54	109	59	18	8	313
Wyoming								5	2	1	2		10

Poliomyelitis (infantile paralysis)—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1	1	2		2	4		3	2	1	4	2	22
Arizona			1		2	4	1	3			2		13
Arkansas	1					1			1	1	2	3	9
California	3	2	3	3	3	21	36	38	15	13	3	4	144
Colorado	1				1		1	1	1	1		1	7
Connecticut	2	1			1	1	5	3	4	2		1	20
Delaware						1							1
District of Columbia				1			1			2			4
Florida				2	2	4	7	5	1		1		22
Idaho					1	1	1			1			4
Illinois	1	1			4	3	4	8	8	7	1	4	41
Indiana	1	1	2	1	2	2	2	4	4	4	2	3	28
Iowa	2		1		1		3	9	14	5	3	1	39
Kansas	2	3					3	9	9	5	4	1	36
Kentucky		1	3	2	1	2	6	1	6	17	5	4	48
Louisiana	2	1			2		1	2	2		4	1	15
Maine	1		1	3				3	1	1			10
Maryland	2	2		2	1	2		1	1	2	1		14
Massachusetts	4	5				3	2	12	13	10	1	1	51
Michigan	1	2	2	3		2	6	2	5	4	2	2	31
Minnesota	1	1	1	1	1	2	13	44	45	26	8	2	145
Missouri	4	1	2	2	2	3	9	14	7	8	4	5	61
Montana						1	1	1	2	1	1	1	8
Nebraska		1	1	1			1	9	13	13	2	1	42
Nevada	4				1	7	1	1					14
New Hampshire				1			1		2	1			5
New Jersey	1		1	1		1	6	7	8	5	4		34
New York	8	4	1	5	5	5	26	54	56	25	13	9	211
North Carolina	4	1	2	4	1		7	1	2	4	1		27
North Dakota						2	9	5	10	2	1		29
Ohio	1	1				1	5	15	18	13	4	7	65
Oklahoma	2		2	6	7	2	1	2	1	3	2		28
Oregon	1		1										2
Pennsylvania	2	2	2	6	4	2	7	13	17	2	1	4	62
Rhode Island			1				1	6	1	1			10
South Dakota		1	1				1	1	3	1	4		12
Tennessee	1	1	3	1		5	2	2	3	8	4	6	36
Texas		1	5	6	6	2	1	2	2	3		4	32
Utah					1								1
Vermont	1		1		1		1	3	2	2		1	12
Virginia	4	1	2	3	2		3	4	3	4	2	4	32
Washington	2	1					6	7	9	4	2	2	33
West Virginia					2	1		1	2	4		1	11
Wisconsin		1	2	2	1		6	16	12	12	6	2	60

Poliomyelitis (infantile paralysis)—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	5	24	0.01	75	0.03	22	0.01	29.3
Arizona	408,000	6	2	.01	37	.09	13	.03	35.1
Arkansas	1,853,000	3	16	.01	10	.01	9	.00	90.0
California	4,021,000	7	80	.02	821	.20	144	.04	17.5
Colorado	1,019,000	5	9	.01			7	.01	
Connecticut	1,531,000	7	57	.04	50	.03	20	.01	40.0
Delaware	235,000	3	2	.01	4	.02	1	.00	25.0
District of Columbia	498,000	7	10	.02	22	.01	1	.01	18.2
Florida	1,091,000	7	10	.01	59	.05	22	.02	37.3
Georgia	3,058,000	5	13	.00			32	.01	
Idaho	492,000	3	7	.01	10	.02	4	.01	40.0
Illinois	6,965,000	7	212	.04	262	.04	41	.01	15.6
Indiana	3,060,000	6	44	.01	58	.02	28	.01	48.3
Iowa	2,506,000	6	41	.02	179	.07	39	.02	21.8
Kansas	1,814,000	5	32	.02	122	.07	36	.02	29.5
Kentucky	2,488,000				82	.03	48	.02	58.5
Louisiana	1,879,000	7	23	.01	31	.02	15	.01	48.4
Maine	783,000	7	14	.02	29	.04	10	.01	34.5
Maryland	1,537,000	7	67	.05	50	.03	14	.01	28.0
Massachusetts	4,128,000	7	184	.05	167	.04	51	.01	30.5
Michigan	4,155,000	7	70	.02	99	.02	31	.01	31.3
Minnesota	2,564,000	7	83	.03	929	.36	145	.06	15.6
Mississippi	[1] 1,791,000	7	36	.02	47	.03	19	.01	40.4
Missouri	3,467,000	3	29	.01	122	.04	61	.02	50.0
Montana	647,000	7	19	.03	41	.06	8	.01	19.5
Nebraska	1,355,000	7	23	.02	125	.09	42	.03	33.6
Nevada	[1] 77,000	4	5	.06	27	.35	14	.18	51.9
New Hampshire	450,000	5	13	.03	21	.05	5	.01	23.8
New Jersey	3,506,000	7	75	.02	106	.05	34	.01	20.5
New Mexico	379,000	5	5	.01	12	.03			
New York	11,106,000	7	542	.05	793	.07	211	.02	26.6
North Carolina	2,759,000	7	23	.01	79	.03	27	.01	34.2
North Dakota	686,000	6	20	.03	154	.22	29	.04	18.8
Ohio	6,322,000	7	85	.01	227	.04	65	.01	28.6
Oklahoma	2,239,000				38	.02	28	.01	73.7
Oregon	846,000	7	5	.01	23	.03	2	.00	8.7
Pennsylvania	9,318,000	7	152	.02	183	.02	62	.01	33.9
Rhode Island	639,000	7	13	.02	37	.06	10	.02	25.6
South Dakota	666,000	7	22	.03	44	.07	12	.02	27.3
Tennessee	2,425,000	2	18	.01			30	.01	
Texas	5,098,000	2	42	.01	50	.01	32	.01	64.0
Utah	492,000	4	5	.01	11	.02	1	.00	9.1
Vermont	[1] 352,000	7	17	.05	81	.23	12	.03	14.8
Virginia	2,449,000	7	102	.04	94	.04	32	.01	34.0
Washington	1,478,000	7	18	.01	115	.08	33	.02	28.7
West Virginia	1,601,000	7	29	.02	17	.01	11	.01	64.7
Wisconsin	2,801,000	7	84	.03	313	.11	60	.02	19.2
Wyoming	222,000	7	3	.01	10	.05	0		

[1] Population Jan. 1, 1920.

Rabies in animals—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California	47	51	39	43	31	27	21	18	26	18	12	20	353
Connecticut		2	1	6	3	2	3	3	1	2	4	5	32
District of Columbia	4	5		13	4	5	10	13	7	6	9	6	82
Florida	9	16	15	18	16	15	10	13	8	7	8	20	155
Kansas													[1] 142
Maryland	13	13	20	10	23	23	22	13	19	12	7	8	183
Massachusetts	25	31	25	28	27	8	19	25	12	9	12	7	228
Minnesota												3	3
Mississippi													[1] 246
Missouri		8	3		12	3		7		1	3	4	41
New Mexico	1	8	2	17	4	10	30	7	4	9	3	1	96
Oregon		2	2	1		1				1	3		10
Rhode Island		1						1					2
Washington		1		5	1	2		2		1	1	1	14
West Virginia										3			3

[1] Data not given by months.

Rabies in man—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1			1				1					3
Arizona							1	1					2
Arkansas	2	1				1							4
California										1			1
Florida	1			1		1						1	4
Georgia													[1] 3
Idaho											1		1
Kansas						1		1		1			3
Kentucky					2					1			3
Louisiana									1	1	1		3
Maryland	1				1		1		1				4
Massachusetts				1			1		1				3
Michigan			1										1
Mississippi													[1] 3
Missouri		1						2	1	1			5
Montana						1							1
Nebraska		1	1										2
New Jersey	1						1				1		3
New York				1									1
North Carolina	2		1				1	1	1	1			7
Ohio				3	2	2		1	2	1			11
Oklahoma								3	1		3	1	8
Tennessee			1		1	1			1	2			6
Texas		1	2		3	1	1			1			9
Virginia										1		1	2
West Virginia				1									1

[1] Data not given by months.

Rocky Mountain spotted (or tick) fever—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California			1	1	1								3
Colorado					1	1							2
Kansas					1								1
Montana			1	18	7	5	2						33
Nevada				1	2	3	3						9
Oregon			1	6	7	3	1						18
South Dakota	1				1								2
Utah					4	1		1					6
Washington				1									1
Wyoming				16	16	4	1	1					38

Rocky Mountain spotted (or tick) fever—Deaths registered, 1925

State	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Colorado					1								1
Idaho	1				2	4	3	3	3	1			17
Montana				5	3								8
Nevada				1	2		1						4
Oregon				1	1								2
Utah						1							1
Wyoming				1		3							4

Scarlet fever—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	7	51	35	34	25	26	23	38	59	77	119	66	69	622
Arizona	6	23	16	25	18	20	18	3	3	7	22	19	22	196
Arkansas	7	36	28	20	15	18	13	15	19	27	42	49	48	327
California	7	566	586	598	438	405	338	159	156	227	385	543	581	5,042
Colorado	7	193	109	165	118	168	88	39	42	57	105	164	156	1,404
Connecticut	7	438	365	372	290	299	179	115	81	103	212	358	474	3,286
Delaware	5	61	52	57	35	48	40	12	11	17	42	67	79	521
District of Columbia	7	130	89	125	115	91	52	16	12	22	56	74	95	877
Florida	7	12	17	11	10	4	8	4	7	5	9	16	11	114
Georgia	6	38	50	55	35	44	25	27	39	80	78	80	60	611
Idaho	5	69	56	31	29	22	12	16	9	13	17	38	25	337
Illinois	7	1,545	1,317	1,390	946	739	475	241	227	444	1,082	1,307	1,516	11,229
Indiana	7	537	464	510	482	316	164	100	103	195	429	506	532	4,288
Iowa	7	422	339	287	207	249	112	48	48	125	220	328	338	2,723
Kansas	7	601	395	346	285	212	122	100	178	272	446	482	528	3,967
Kentucky	2	104	64	77	65	53	25	24	30	44	87	145	89	807
Lousiana	7	32	30	29	24	16	9	8	15	15	27	43	53	301
Maine	7	134	95	111	95	127	81	50	62	47	68	97	138	1,105
Maryland	7	397	416	379	263	177	152	50	62	112	211	286	337	2,842
Massachusetts	7	1,135	1,079	1,223	1,013	810	492	268	231	287	554	807	971	8,870
Michigan	7	1,207	969	1,021	923	726	538	353	316	522	886	1,150	1,227	9,838
Minnesota	7	670	770	741	598	545	338	165	225	315	548	634	727	6,276
Mississippi	7	48	33	28	27	36	23	28	43	73	88	68	70	565
Missouri	3	434	450	410	306	218	151	75	113	290	501	633	715	4,300
Montana	7	152	99	81	97	69	39	37	35	34	87	93	94	917
Nebraska	7	274	217	152	139	100	52	32	26	58	124	102	201	1,587
Nevada	4	7	3	4	4	8	4	2	2	6	13	4	9	66
New Hampshire	5	54	50	51	56	34	46	10	10	20	41	54	64	490
New Jersey	7	751	777	826	706	632	345	138	107	173	342	524	732	6,058
New Mexico	5	57	48	46	32	29	13	8	7	15	31	36	42	364
New York	7	2,482	2,495	2,874	2,423	2,240	1,207	593	383	527	907	1,630	2,225	19,986
North Carolina	7	191	100	110	82	76	74	65	123	242	345	278	229	1,915
North Dakota	7	191	149	134	94	65	34	26	41	55	86	136	132	1,143
Ohio	7	1,640	1,713	1,264	1,135	952	536	321	405	554	1,310	1,575	1,695	13,100
Oklahoma	4	49	28	39	26	23	27	16	16	39	80	80	65	488
Oregon	7	99	71	67	69	65	45	34	26	36	76	78	96	762
Pennsylvania	7	2,018	1,947	2,125	1,559	1,185	799	434	417	776	1,396	1,914	2,063	16,623
Rhode Island	7	70	70	89	78	77	44	32	16	31	47	64	104	722
South Dakota	7	225	200	161	149	92	72	46	45	78	147	185	173	1,573
Tennessee	4	72	75	52	56	41	28	24	43	104	170	158	138	961
Texas	6	92	95	63	70	69	43	40	42	45	54	112	148	873
Utah	5	61	66	87	60	52	47	17	32	28	34	35	57	576
Vermont	7	77	78	68	68	57	38	35	23	36	33	77	83	673
Virginia	7	252	207	157	118	101	62	79	121	230	321	367	348	2,363
Washington	7	249	227	218	215	209	147	75	74	135	163	177	176	2,056
West Virginia	7	183	132	144	115	187	63	73	80	196	340	315	271	2,049
Wisconsin	7	817	721	627	475	558	339	209	173	266	473	607	670	5,944
Wyoming	7	25	21	24	21	34	10	5	7	12	20	36	22	237

Scarlet fever—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	126	84	115	109	154	76	73	76	91	110	108	74	1,196
Arizona	29	35	43	36	23	31	2	8	22	41	64	49	383
Arkansas	51	89	30	19	12	12	8	17	10	16	59	45	368
California	685	618	689	619	511	368	254	179	223	347	567	667	5,727
Colorado	205	174	173	107	122	88	84	54	43	47	90	91	1,278
Connecticut	810	725	637	480	362	180	75	71	70	134	185	276	4,005
Delaware	18	30	25	17	19	4	1		1	8	15	17	155
District of Columbia	134	148	132	106	92	44	18	21	32	93	102	89	1,011
Florida	10	19	17	18	16	10	3	6	3	12	24	41	179
Georgia	28	34	25	28	25	15	10	23	21	42	47	30	328
Idaho	46	32	28	12	16	5	9	14	11	29	38	45	285
Illinois	2,064	2,099	2,384	1,772	1,682	909	351	261	377	755	1,279	1,755	15,688
Indiana	927	892	951	856	703	292	129	103	125	511	750	918	7,157
Iowa	257	178	137	130	120	42	24	28	48	165	211	216	1,556
Kansas	542	483	574	418	265	98	78	92	113	185	288	233	3,369
Kentucky	189	193	152	138	123	61	14	49	52	119	117	102	1,309
Louisiana	77	62	83	50	48	45	23	25	20	34	58	73	598
Maine	122	75	162	85	90	43	35	27	36	114	139	126	1,054
Maryland	415	444	340	286	223	112	54	31	55	130	189	226	2,505
Massachusetts	1,684	1,462	1,458	1,148	996	563	269	179	225	566	781	988	10,319
Michigan	1,310	1,366	1,717	1,605	1,321	1,001	434	269	353	667	875	1,385	12,303
Minnesota	1,246	1,018	1,112	939	1,041	573	336	298	386	598	862	1,165	9,574
Mississippi	69	30	21	14	11	13	19	40	37	38	77	88	[1]459
Missouri	1,242	1,557	1,226	1,061	799	390	155	223	165	426	555	660	8,459
Montana	169	122	125	144	171	73	53	34	66	111	119	150	1,337
Nebraska	76	114	65	90	57	20	26	20	18	84	106	178	854
Nevada	8	5	8	17	3	2	1	2	4	1	1	1	53
New Hampshire	361	221	139	65	88	43	9	25	27	51	82	70	1,181
New Jersey	1,027	1,282	1,492	1,174	997	514	182	116	157	330	609	723	8,603
New Mexico	41	24	49	33	28	6	4	8	4	42	74	35	348
New York	2,537	2,869	3,154	2,898	2,398	1,221	496	272	347	728	1,066	1,502	19,488
North Carolina	180	124	100	107	80	43	42	83	190	301	321	285	1,856
North Dakota	346	236	273	136	166	67	49	76	83	134	236	281	2,083
Ohio	2,123	2,131	2,335	1,827	1,575	824	303	233	387	929	1,141	1,520	15,328
Oklahoma	221	157	175	149	145	58	36	52	54	78	135	166	1,426
Oregon	184	116	106	128	86	61	41	30	68	153	220	215	1,408
Pennsylvania	2,690	2,878	3,087	2,534	2,358	1,217	517	465	637	1,174	1,856	1,967	21,380
Rhode Island	116	145	118	143	75	33	18	15	22	33	43	64	825
South Dakota	241	188	213	199	148	88	93	84	108	150	367	366	2,245
Tennessee	95	188	116	145	121	39	11	62	121	159	140	194	1,391
Texas	201	182	88	101	76	91	40	35	33	48	85	202	1,182
Utah	55	68	51	35	30	49	20	20	31	98	82	113	662
Vermont	107	83	104	65	55	33	20	15	41	31	125	58	737
Virginia	254	207	198	112	80	71	74	87	191	368	428	430	2,500
Washington	219	203	177	119	122	99	61	33	98	240	349	384	2,104
West Virginia	244	133	193	170	210	88	44	84	127	259	225	234	2,011
Wisconsin	688	661	600	719	541	425	266	171	202	287	530	772	5,862
Wyoming	37	30	29	34	18	23	18	23	25	42	61	52	392

[1] Includes 2 cases for which the month is not given.

Scarlet fever—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	3	2	1	1	1			1	3	2	3	3	20
Arizona						1	1	1				2	5
Arkansas	2	1	1			3		1	2		1	2	13
California	16	7	6	4	8	4	1	3	4	4	3	4	64
Colorado	5	4	3	3	1	2			1	4		3	26
Connecticut	7	7	7	4	5	2	1	1	1	1	4	4	44
Delaware			2		1								3
District of Columbia	1	1	2							1			5
Florida	2			1								1	4
Idaho	1											1	2
Illinois	34	28	59	34	32	11	6	9	5	10	20	20	268
Indiana	18	13	14	16	9	5	6	2	4	2	9	10	108
Iowa	11	8	3	3	3	3	4	1		4	4	2	46
Kansas	3		6	8	2	2			2		5	7	35
Kentucky	6	4	6	5			1	3	3	2	6	4	40

Scarlet fever—Deaths registered, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Louisiana	1	2			1	3				1		1	9
Maine	4	2	1	3		1			2	4	1	5	23
Maryland	3	3	6	1				1			2		16
Massachusetts	19	24	14	14	11	6	3		4	6	6	10	117
Michigan	19	18	37	22	24	19	13	8	5	15	11	17	208
Minnesota	16	14	18	20	23	23	6	5	3	9	6	10	153
Missouri	26	20	23	18	11	10	8	3	8	5	13	13	158
Montana	6	3	2	1	2		2	1			2		19
Nebraska	6	5	4	6	3		1		1	1	2	3	32
Nevada	1												1
New Hampshire	7	2					1	1	1		1	3	16
New Jersey	8	7	11	12	5	5	2	2	1	2	5	6	66
New York	21	28	35	22	23	12	4	5	3	9	6	12	183
North Carolina	1	1	1	7		4	1	3	1	4	5	3	31
North Dakota	7	7	9	5	1	4	1	2		2		2	40
Ohio	36	23	52	36	21	14	8	5	8	8	15	18	244
Oklahoma	2	9	7	3	4		1		1	1	2	9	39
Oregon	2	1	2	3	3	1	3	2			1		18
Pennsylvania	51	46	56	22	47	16	14	8	4	13	25	24	326
Rhode Island	3	2		1	1		1					2	10
South Dakota	2	4	2	1	3	1				1	1	1	16
Tennessee	3	2	4	1	5		2	1	5	3	3	3	32
Texas	3	1	2	3	2	3	2	3		5	7	3	34
Utah		1							1			1	3
Vermont	4		1	1	1						5	3	15
Virginia	5	5	7	2	2		2	2	4	3	2	4	38
Washington	3	4	3		2	2	1	1	1		3	5	25
West Virginia		3	1	7	2	3	2	3	6	2	5	5	39
Wisconsin	12	17	13	16	9	7	5	4	2	1	4	12	102
Wyoming	2	1	1	3	1		1				1		10

Scarlet fever—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population, July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	7	022	0.26	1,196	0.48	20	0.01	1.7
Arizona	408,000	6	196	.55	383	.94	5	.01	1.3
Arkansas	1,853,000	7	327	.18	368	.20	13	.01	3.5
California	4,021,000	7	5,042	1.40	5,727	1.42	64	.02	1.1
Colorado	1,019,000	7	1,404	1.46	1,278	1.25	26	.03	2.0
Connecticut	1,531,000	7	3,286	1.71	4,005	2.62	44	.03	1.1
Delaware	235,000	5	521	2.29	155	.66	3	.01	1.9
District of Columbia	498,000	7	877	2.00	1,011	2.03	5	.01	.5
Florida	1,091,000	7	114	.11	179	.16	4	.00	2.2
Georgia*	3,058,000	6	611	.21	328	.11	11	.00	3.4
Idaho	492,000	5	337	.73	285	.58	2	.00	.7
Illinois	6,965,000	7	11,220	1.70	15,688	2.25	268	.04	1.7
Indiana	3,060,000	7	4,288	1.45	7,157	2.34	103	.03	1.4
Iowa	2,506,000	7	2,723	1.12	1,556	.62	46	.02	3.0
Kansas	1,814,000	7	3,967	2.23	3,369	1.86	35	.02	1.0
Kentucky	2,488,000	2	807	.33	1,309	.53	40	.02	3.1
Louisiana	1,879,000	7	301	.17	598	.32	9	.00	1.5
Maine	783,000	7	1,105	1.43	1,054	1.35	23	.03	2.2
Maryland	1,537,000	7	2,842	1.93	2,505	1.63	16	.01	.6
Massachusetts	4,128,000	7	8,870	2.26	10,319	2.50	117	.03	1.1
Michigan	4,155,000	7	9,838	2.59	12,303	2.96	208	.05	1.7
Minnesota	2,564,000	7	6,276	2.45	9,574	3.73	153	.06	1.6
Mississippi	1,791,000	7	565	.32	459	.26	10	.01	2.2
Missouri	3,467,000	3	4,300	1.25	8,459	2.44	158	.05	1.9
Montana	647,000	7	917	1.39	1,337	2.07	19	.03	1.4

* Population Jan. 1, 1920.

Scarlet fever—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924—Continued

State	Estimated population, July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Nebraska	1,355,000	7	1,537	1.17	854	0.63	32	0.02	3.7
Nevada	[1] 77,000	4	66	.86	53	.69	1	.01	1.9
New Hampshire	450,000	5	490	1.10	1,181	2.62	16	.04	1.4
New Jersey	3,506,000	7	6,053	1.86	8,603	2.45	66	.02	.8
New Mexico	379,000	5	364	.99	348	.92	------	------	------
New York	11,106,000	7	19,986	1.89	19,488	1.75	183	.02	.9
North Carolina	2,759,000	7	1,915	.73	1,856	.67	31	.01	1.7
North Dakota	686,000	7	1,143	1.74	2,083	3.04	40	.06	1.9
Ohio	6,322,000	7	13,100	2.22	15,328	2.42	244	.04	1.6
Oklahoma	2,239,000	4	488	.23	1,426	.64	39	.02	2.7
Oregon	846,000	7	762	.95	1,408	1.66	18	.02	1.3
Pennsylvania	9,318,000	7	16,633	1.87	21,380	2.29	326	.03	1.5
Rhode Island	639,000	7	722	1.18	825	1.29	10	.02	1.2
South Dakota	666,000	7	1,573	2.45	2,245	3.37	16	.02	.7
Tennessee	2,425,000	4	961	.40	1,391	.57	32	.01	2.3
Texas	5,098,000	6	873	.18	1,182	.23	34	.01	2.9
Utah	492,000	5	576	1.25	662	1.35	3	.01	.5
Vermont	[1] 352,000	7	673	1.91	737	2.09	15	.04	2.0
Virginia	2,449,000	7	2,363	1.01	2,500	1.02	38	.02	1.5
Washington	1,478,000	7	2,056	1.48	2,104	1.42	25	.02	1.2
West Virginia	1,601,000	7	2,049	1.37	2,011	1.26	39	.02	1.9
Wisconsin	2,801,000	7	5,944	2.22	5,862	2.09	102	.04	1.7
Wyoming	222,000	7	237	1.17	392	1.77	10	.05	2.6

[1] Population Jan. 1, 1920.

Septic sore throat—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Colorado	------	------	------	------	1	2	1	1	4	------	------	------	9
Connecticut	15	21	19	7	6	4	------	3	------	6	9	44	134
Delaware	------	------	------	------	------	1	------	------	------	------	------	------	1
Georgia	1	42	47	42	57	23	17	18	45	80	44	33	449
Idaho	------	------	------	3	------	------	------	------	------	------	------	------	3
Illinois	4	7	22	8	7	2	1	3	5	5	3	15	82
Iowa	------	------	------	------	------	------	------	------	------	------	------	1	1
Maine	5	6	6	2	3	------	------	------	------	------	2	5	29
Maryland	21	11	10	5	6	5	------	2	2	7	5	8	82
Massachusetts	14	14	16	9	13	6	12	2	7	9	7	7	116
Michigan	57	41	81	54	59	32	8	5	24	67	68	78	574
Missouri	7	3	5	10	8	3	------	------	3	3	6	14	62
Montana	------	1	------	2	2	1	------	------	------	------	2	------	8
Nebraska	------	2	2	------	------	------	------	------	------	1	------	------	5
New Mexico	5	3	------	1	------	------	------	------	------	------	1	3	13
New York	29	23	32	23	12	356	27	8	15	10	20	18	573
North Carolina	21	2	2	17	6	------	1	1	19	26	6	3	104
Ohio	79	46	65	56	60	35	37	33	46	62	99	95	713
Oregon	1	1	3	1	------	1	4	1	3	8	1	3	27
Rhode Island	1	1	1	2	------	4	------	------	------	------	------	1	10
South Dakota	------	------	------	------	------	------	------	------	------	------	------	1	1
Wyoming	------	------	------	------	1	------	1	------	------	5	1	1	9

Septic sore throat—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Connecticut	4	3	2	1	3	2	1		1	1	3		21
Delaware						1							1
Illinois	7		9	10	2	7	3	4	2	3	2	6	55
Kansas	2	2	1		2	1	7	4	7		8	5	39
Kentucky		2	2	1	2	1	1	3	1	1	2		16
Louisiana	3	2	4	3	2	1	4	1	4	3		4	31
Maine	2								1			1	4
Maryland	1	1	2	1	1	1				1		1	9
Massachusetts	1	3	4	3	2	3	5	1	2	2	1	2	29
Michigan	23	18	21	26	25	24	12	21	20	17	15	10	232
Montana	1		1	1									3
New Hampshire	1	1			2	1	3	3	1	2	1	3	18
New York	7	11	17	3	3	12	7	4	2	3	4	6	79
North Carolina	2	2		1				2	2				9
Ohio	14	19	23	15	23	13	21	7	20	16	27	16	214
Oklahoma	11	8	3	8	3	2	3	2		6	7	9	62
Oregon			3						2				5
Vermont		2				1					1	1	5
Washington	6	1	3	5	5	6	3	5	3	1			38
Wyoming							1			1		1	3

Septic sore throat—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Colorado	1,019,000	9	0.01	0		
Connecticut	1,531,000	134	.09	21	0.01	6.4
Delaware	235,000	1	.00	1	.00	1.0
Georgia	3,058,000	449	.15	0		
Idaho	492,000	3	.01			
Illinois	6,965,000	82	.01	55	.01	1.5
Iowa	2,506,000	1	.00	0		
Kansas	1,814,000			39	.02	
Kentucky	2,488,000			16	.01	
Louisiana	1,879,000			31	.02	
Maine	783,000	29	.04	4	.01	7.2
Maryland	1,537,000	82	.05	9	.01	9.1
Massachusetts	4,128,000	116	.03	29	.01	4.0
Michigan	4,155,000	574	.14	232	.06	2.5
Missouri	3,467,000	62	.02			
Montana	647,000	8	.01	3	.00	2.7
Nebraska	1,355,000	5	.00	0		
New Hampshire	450,000			18	.04	
New Mexico	379,000	13	.03			
New York	11,106,000	573	.05	79	.01	7.3
North Carolina	2,759,000	104	.04	9	.00	11.6
Ohio	6,322,000	713	.11	214	.03	3.3
Oklahoma	2,239,000			62	.03	
Oregon	846,000	27	.03	5	.01	5.4
Rhode Island	639,000	10	.02			
South Dakota	666,000	1	.00			
Vermont	[1] 352,000			5	.01	
Washington	1,478,000			38	.03	
Wyoming	222,000	9	.04	3	.01	3.0

[1] Population Jan. 1, 1920.

Smallpox—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	4	116	119	137	130	95	54	28	15	11	17	24	71	817
Arizona	6	13	18	23	31	39	16	5	4	1	1	2	6	159
Arkansas	7	33	81	62	46	59	45	31	10	6	14	20	22	429
California	7	260	234	227	174	176	170	146	131	129	190	288	473	2,598
Colorado	5	81	76	72	63	55	51	43	44	50	56	70	80	741
Connecticut	7	2	2	6	10	1	3	0	1	1	0	1	1	28
Delaware	5	0	1	0	0	1	0	0	0	0	0	0	0	2
District of Columbia	7	7	9	18	7	12	4	1	1	0	2	1	4	66
Florida	7	34	28	21	23	17	10	5	2	1	6	3	17	167
Georgia	6	100	232	263	147	143	102	59	35	12	35	45	61	1,234
Idaho	5	46	30	22	23	19	29	18	10	16	11	22	35	281
Illinois	7	350	303	286	263	319	217	103	36	21	61	81	139	2,179
Indiana	7	367	374	526	699	569	314	131	77	52	124	153	203	3,589
Iowa	3	78	79	91	81	113	66	19	14	23	29	54	86	733
Kansas	3	136	143	125	131	93	62	29	11	12	17	30	36	825
Kentucky	2	48	49	42	54	39	18	28	30	3	20	20	42	393
Louisiana	7	86	158	153	142	125	67	39	16	14	19	21	53	893
Maine	3	10	6	7	7	2	3	8	2	2	1	1	0	49
Maryland	3	1	1	0	8	5	9	1	2	3	3	1	2	36
Massachusetts	7	2	1	1	2	3	1	2	0	0	1	1	1	15
Michigan	7	490	351	466	419	421	343	136	73	78	137	111	233	3,258
Minnesota	5	304	283	278	231	209	166	115	61	45	96	186	285	2,259
Mississippi	3	77	84	51	82	33	23	17	16	19	28	54	93	577
Missouri	3	124	60	95	55	77	44	29	6	9	12	37	59	607
Montana	7	168	111	118	118	110	77	41	17	28	50	62	83	983
Nebraska	3	45	38	42	31	27	15	16	7	3	10	19	38	291
Nevada	4	3	15	5	5	1	2	1	0	1	1	3	5	42
New Hampshire	5	1	0	1	1	1	0	1	0	0	1	0	0	6
New Jersey	7	7	3	27	26	3	13	7	1	1	1	1	3	93
New Mexico	5	11	7	11	21	14	1	1	1	1	1	2	6	77
New York	7	40	43	47	27	29	35	33	23	9	7	6	31	330
North Carolina	7	335	340	475	371	343	205	115	62	43	60	82	152	2,583
North Dakota	7	36	42	55	53	51	33	16	14	10	17	31	41	399
Ohio	7	413	490	551	591	520	497	168	115	121	96	238	292	4,092
Oklahoma	4	174	167	196	185	160	94	18	7	7	25	26	52	1,111
Oregon	7	95	104	139	122	113	93	58	40	49	49	61	88	1,011
Pennsylvania	7	18	25	24	26	31	24	22	10	3	3	6	10	202
Rhode Island	7	1	0	1	0	1	0	0	0	0	0	1	0	4
South Dakota	7	85	79	86	119	63	53	14	6	30	31	49	67	682
Tennessee	2	76	68	78	159	180	39	58	23	12	21	37	53	804
Texas	5	155	165	129	268	242	212	55	41	17	15	15	49	1,363
Utah	1	40	29	5	4	7	3	3	2	4	4	19	48	168
Vermont	7	5	6	4	2	1	1	1	1	1	1	0	3	26
Virginia	3	77	64	66	76	67	35	17	10	7	8	12	14	453
Washington	4	262	198	228	189	164	121	94	71	51	64	114	163	1,719
West Virginia	3	54	39	61	63	34	40	20	7	5	9	24	23	379
Wisconsin	3	209	157	139	128	159	146	89	44	37	91	113	142	1,454
Wyoming	3	4	13	14	10	7	5	2	0	2	4	5	4	70

Smallpox—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	996	884	673	498	511	271	80	89	25	40	157	64	4,288
Arizona	83	22	4	5	3	0	0	0	0	0	0	0	117
Arkansas	48	77	31	38	18	10	1	7	1	1	8	11	251
California	697	704	653	827	536	399	294	135	91	113	194	278	4,921
Colorado	3	1	1	2	2	2	1	1	1	0	1	4	19
Connecticut	0	0	0	2	2	0	0	0	0	0	0	0	4
Delaware	0	0	0	1	4	2	2	0	0	0	0	0	9
District of Columbia	11	9	7	26	4	2	0	0	0	0	0	0	59
Florida	4	8	31	28	21	20	6	7	3	1	14	64	207
Georgia	14	61	48	46	128	68	6	12	3	17	19	22	444
Idaho	66	37	61	64	102	41	14	16	10	13	64	38	526
Illinois	210	298	220	215	150	193	46	30	20	30	76	137	1,625
Indiana	495	456	395	256	367	261	118	76	17	63	260	232	2,996
Iowa	163	87	49	37	68	58	13	12	19	29	39	90	664
Kansas	39	31	43	35	22	48	18	10	0	14	28	23	[illegible]

Smallpox—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Kentucky	90	72	77	78	55	71	4	25	9	13	15	5	514
Louisiana	265	110	141	84	50	33	21	12	4	8	34	121	883
Maine	1	0	0	0	0	0	0	0	0	0	0	0	1
Maryland	0	0	2	6	4	3	1	0	0	0	0	0	16
Massachusetts	0	0	0	1	1	0	0	0	1	0	0	0	3
Michigan	151	62	80	93	86	117	43	29	17	13	18	75	784
Minnesota	362	204	118	73	81	28	23	11	8	24	12	29	973
Mississippi	141	244	155	145	102	119	63	67	48	15	39	77	[1]1,216
Missouri	56	94	75	61	93	99	34	3	6	7	10	37	575
Montana	97	62	36	35	17	17	19	13	5	9	39	27	376
Nebraska	87	118	161	114	114	82	18	10	5	8	26	143	886
Nevada	28	34	7	14	5	1	4	3	0	0	1	0	97
New Jersey	35	19	41	27	37	17	11	2	0	0	0	0	189
New Mexico	1	0	8	2	7	1	2	0	0	0	1	3	25
New York	59	54	34	14	31	83	5	1	1	0	1	3	286
North Carolina	311	329	250	350	253	174	56	39	47	22	44	45	1,920
North Dakota	50	15	36	33	19	15	1	2	8	5	10	10	204
Ohio	697	550	576	540	458	464	180	89	41	39	137	247	4,018
Oklahoma	131	181	175	76	54	37	34	5	10	7	26	39	775
Oregon	170	114	96	31	65	70	24	11	19	81	88	94	863
Pennsylvania	27	25	30	63	37	24	1	1	1	1	2	0	212
Rhode Island	0	0	1	27	11	6	16	4	11	18	0	0	94
South Dakota	45	40	47	57	20	10	7	1	5	13	9	11	265
Tennessee	447	485	251	221	179	77	31	14	53	14	6	27	1,805
Texas	157	271	244	193	207	138	18	21	13	2	2	43	1,309
Utah	22	18	2	0	0	5	1	0	4	0	22	39	113
Virginia	27	27	23	19	45	61	35	8	6	6	26	35	318
Washington	145	262	198	196	192	153	114	37	63	102	220	322	2,004
West Virginia	282	123	104	96	85	57	29	30	9	0	2	3	820
Wisconsin	263	217	196	157	243	188	79	41	25	16	37	55	1,517
Wyoming	7	5	6	0	1	2	2	1	1	3	17	25	70

[1] Includes 1 case for which the month is not given.

Smallpox—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	1	3	2	5	1	5	1	1		1	1	1	22
Arizona	1												1
Arkansas		1		1		1			1			2	6
California	7	7	4	9	5	1	1	4	2	5	3	10	58
Connecticut					1								1
District of Columbia	2	3	1	13	1								20
Idaho	1	1											2
Illinois	1	2	2	7	2	6	1			1			22
Indiana		1		1	2	1							5
Iowa	8	5	9	2	4	10	2	1					41
Kansas				1									1
Kentucky	1	1		2								1	5
Louisiana	3		1	2	1							2	9
Michigan	6	4	7	1				2	1	1			22
Minnesota	100	38	18	15	16	4	5	1				1	198
Missouri	1												1
Nebraska										1			1
Nevada		1	1										2
New Jersey	10	8	7	14	8	1							48
New York	2												2
North Carolina	2		1			1			1	1		1	7
North Dakota	3	1	1	1									6
Ohio	2	6	3	14	9	6	6		1				47
Oklahoma		2											2
Oregon	1					1							2
Pennsylvania	3	2	2	16	5	1		1					30
Tennessee	1		1	2					1				5
Texas	1	1											2
Virginia					1		1		1				3
Washington			1									3	4
West Virginia					1					1			2
Wisconsin	9	10	7	17	48	29	9		2				131

Smallpox—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population, July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	4	817	.34	4,288	1.74	22	0.01	0.5
Arizona	408,000	6	159	.45	117	.29	1	.00	.9
Arkansas	1,853,000	7	429	.24	251	.14	6	.00	2.4
California	4,021,320	7	2,598	.72	4,921	1.22	58	.01	1.2
Colorado	1,019,000	5	741	.77	19	.02	0		
Connecticut	1,531,000	7	28	.01	4	.00	1	.00	25.0
Delaware	235,000	5	2	.01	9	.04	0		
District of Columbia	498,000	7	66	.15	59	.12	20	.04	33.9
Florida	1,091,000	7	167	.17	207	.19	0		
Georgia	3,058,000	6	1,234	.42	444	.15	10	.00	2.3
Idaho	492,000	5	281	.61	526	1.07	2	.00	.4
Illinois	6,965,000	7	2,179	.33	1,625	.23	22	.00	1.4
Indiana	3,060,000	7	3,589	1.21	2,996	.98	5	.00	.2
Iowa	2,506,000	3	733	.30	664	.26	41	.02	6.2
Kansas	1,814,000	3	825	.46	311	.17	1	.00	.3
Kentucky	2,488,000	2	393	.16	514	.21	5	.00	1.0
Louisiana	1,879,000	7	893	.49	883	.47	9	.00	1.0
Maine	783,000	3	49	.06	1	.00	0		
Maryland	1,537,000	3	36	.02	16	.01	0		
Massachusetts	4,128,000	7	15	.00	3	.00	0		
Michigan	4,155,000	7	3,258	.86	784	.19	22	.01	2.8
Minnesota	2,564,000	5	2,259	.93	973	.38	198	.08	20.3
Mississippi	[1] 1,791,000	3	577	.32	1,216	.68	4	.00	.3
Missouri	3,467,000	3	607	.18	575	.17	1	.00	.2
Montana	647,000	7	983	1.71	376	.58	0		
Nebraska	1,355,000	3	291	.22	886	.65	1	.00	.1
Nevada	[1] 77,000	4	42	.55	97	1.26	2	.03	2.1
New Hampshire	450,000	5	6	.01	0		0		
New Jersey	3,506,000	7	93	.03	189	.05	48	.01	25.4
New Mexico	379,000	5	77	.21	25	.07			
New York	11,106,000	7	330	.03	286	.03	2	.00	.7
North Carolina	2,759,000	7	2,583	.99	1,920	.70	7	.00	.4
North Dakota	686,000	7	399	.61	204	.30	6	.01	2.9
Ohio	6,322,000	7	4,092	.69	4,018	.64	47	.01	1.2
Oklahoma	2,239,000	4	1,111	.51	775	.35	2	.00	.3
Oregon	846,000	7	1,011	1.26	863	1.02	2	.00	.2
Pennsylvania	9,318,000	7	202	.02	212	.02	30	.00	14.2
Rhode Island	639,000	7	4	.01	94	.15	0		
South Dakota	666,000	7	682	1.06	265	.40	0		
Tennessee	2,425,000	2	804	.34	1,805	.74	5	.00	.3
Texas	5,098,000	5	1,368	.29	1,309	.26	2	.00	.2
Utah	492,000	1	168	.35	113	.23	0		
Vermont	[1] 352,000	7	26	.07	0		0		
Virginia	2,449,000	3	453	.19	318	.13	3	.00	.9
Washington	1,478,000	4	1,719	1.24	2,004	1.36	4	.00	.2
West Virginia	1,601,000	3	379	.25	820	.51	2	.00	.2
Wisconsin	2,801,000	3	1,454	.54	1,517	.54	131	.05	8.6
Wyoming	222,000	3	70	.35	70	.32	0		

[1] Population Jan. 1, 1920

Syphilis—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	607	737	740	740	767	813	798	808	829	768	798	730	9,135
Arizona	14	8	19	14	10	17							[1] 82
Arkansas	290	276	303	285	254	319	294	288	156	222	189	184	3,060
California	961	989	745	1,098	917	926	932	895	1,088	888	859	896	11,194
Colorado	50	36	55	47	43	63	85	47	28	60	21	38	573
Connecticut	140	138	159	94	109	107	79	69	108	107	145	61	1,316
Delaware	24	6	17	13	4	14	11	12	19	45	11	13	189
Florida	243	331	305	400	402	520	416	354	497	509	345	439	4,761
Georgia	469	732	509	539	439	673	547	582	607	447	427	472	6,443
Idaho	7	3	6	4	4	15	12	4	2	1	6	4	68
Illinois	879	884	986	1,051	1,068	977	883	792	1,035	884	809	965	11,213
Indiana	265	156	162	211	206	180	164	137	202	188	174	143	2,188
Kansas	52	42	68	55	36	59	50	33	48	51	28	50	572
Kentucky	2,740	2,320	2,466	2,501	2,506	2,386	2,494	2,515	2,579	2,685	2,618	2,522	30,332
Louisiana	293	252	339	267	367	342	325	286	424	288	293	215	3,691
Maine	19	27	29	56	27	20	44	13	5	32	34	18	324
Maryland	269	180	236	245	304	220	184	257	281	209	215	379	2,979
Massachusetts	194	184	215	153	183	174	144	164	175	194	175	192	2,147
Michigan	1,215	1,067	1,301	1,362	1,180	1,332	1,049	1,128	1,085	1,349	986	1,255	14,309
Minnestoa	432	429	458	424	399	420	510	416	400	441	397	420	5,146
Mississippi	785	893	1,011	1,176	988	971	868	1,043	1,117	1,250	1,073	1,050	12,225
Missouri	327	364	449	338	372	230	295	351	335	331	313	335	4,090
Montana	12	13	9	4	18	0							[1] 56
Nebraska	90	73	84	86	56	75	68	62	49	235	200	99	1,177
New Hampshire	6	13	20	13	16	10	13	16	10	12	11	28	168
New Jersey	373	273	466	443	406	402	533	349	505	475	387	401	5,013
New Mexico	4	4	24	16	12	14	7	4	8	6	4	7	110
New York	2,484	2,024	2,412	2,705	2,065	2,302	2,203	1,972	2,672	2,719	2,352	2,597	28,507
North Carolina	280	273	317	265	274	233	53	59	40	47	57	72	[2] 1,970
North Dakota	23	20	20	27	17	22	26	27	31	24	31	28	296
Ohio	428	431	512	499	492	546	474	435	451	572	464	497	5,801
Oregon	104	35	53	76	128	55	27	34	53	44	37	45	691
Pennsylvania	263	231	218	234	239	203	222	217	211	231	219	186	2,674
Rhode Island	26	36	42	43	45	32	35	42	28	38	30	35	432
South Carolina	201	179	381	229	734	667	817	533	567				[1] 4,308
South Dakota	22	5	10	7	7	15	6	7	5	8	10	12	114
Tennessee	288	267	230	320	307	268	380	311	176	232	219	2,147	5,145
Texas	1,462	1,356	1,322	1,682	1,149	1,346	1,857	3,301	2,255	2,133	1,801	1,037	20,701
Utah	27	14	19	14	9	13							[1] 96
Vermont	18	19	19	24	24	26	20	47	16	19	20	34	286
Virginia	154	196	221	172	202	170	176	146	129	120	111	120	1,917
Washington	73	135	33	81	31	32	45	60	53	67	74	46	730
West Virginia	410	443	472	471	406	534	508	560	542	545	556	631	6,078
Wisconsin	58	57	61	71	79	82	64	50	67	55	61	66	771
Wyoming	15	17	10	1	2								[1] 45

[1] Information not available for the entire year.
[2] Figures from July to December, inclusive, are for clinics only.

NOTE.—Iowa and Oklahoma did not report in 1925.

Syphilis—Cases reported and indicated morbidity rates, 1925

State	Estimated population, July 1, 1925	Total cases reported	Cases per 1,000 inhabitants	State	Estimated population, July 1, 1925	Total cases reported	Cases per 1,000 inhabitants
Alabama	2,467,000	9,135	3.70	Missouri	3,467,000	4,090	1.18
Arkansas	1,853,000	3,060	1.65	Nebraska	1,355,000	1,177	.87
California	4,021,000	11,194	2.78	New Hampshire	450,000	168	.37
Colorado	1,019,000	573	.56	New Jersey	3,506,000	5,013	1.43
Connecticut	1,531,000	1,316	.86	New Mexico	379,000	110	.29
Delaware	235,000	189	.80	New York	11,106,000	28,507	2.57
Florida	1,091,000	4,761	4.36	North Dakota	686,000	296	.43
Georgia	3,058,000	6,443	2.11	Ohio	6,322,000	5,801	.92
Idaho	492,000	68	.14	Oregon	846,000	691	.82
Illinois	6,965,000	11,213	1.61	Pennsylvania	9,318,000	2,674	.29
Indiana	3,060,000	2,188	.72	Rhode Island	639,000	432	.68
Kansas	1,814,000	572	.32	South Dakota	666,000	114	.17
Kentucky	2,488,000	30,332	12.19	Tennessee	2,425,000	5,145	2.12
Louisiana	1,879,000	3,691	1.96	Texas	5,098,000	20,701	4.06
Maine	783,000	324	.41	Vermont	[1] 352,000	286	.81
Maryland	1,537,000	2,979	1.94	Virginia	2,449,000	1,917	.78
Massachusetts	4,128,000	2,147	.52	Washington	1,478,000	730	.49
Michigan	4,155,000	14,309	3.44	West Virginia	1,601,000	6,078	3.80
Minnesota	2,564,000	5,146	2.01	Wisconsin	2,801,000	771	.28
Mississippi	[1] 1,791,000	12,225	6.83				

[1] Population Jan. 1, 1920.

Tuberculosis (all forms)—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	179	227	335	235	374	360	237	478	382	464	370	192	3,833
California	829	804	700	1,119	818	770	834	748	776	781	672	850	9,701
Colorado	152	131	134	67	167	253	218	189	205	179	173	178	2,046
Connecticut	137	113	143	171	117	146	130	118	119	114	112	92	1,512
Delaware	58	62	42	40	36	45	43	30	28	19	17	23	443
District of Columbia	102	124	107	141	107	111	123	84	84	80	94	81	1,238
Florida	95	175	150	151	139	130	110	115	114	142	98	84	1,503
Illinois	902	1,182	1,143	1,101	1,151	1,190	1,051	825	1,161	1,015	1,332	1,941	13,994
Kansas	142	154	231	287	184	190	213	158	217	245	195	224	2,440
Maryland	215	219	296	344	339	317	372	276	304	259	248	244	3,433
Massachusetts	553	531	708	652	732	685	608	436	426	484	471	519	6,800
Michigan	448	535	406	668	524	592	549	247	632	353	399	432	5,785
Minnesota	316	210	369	394	351	293	320	266	371	358	237	386	3,871
Mississippi	322	276	360	357	351	336	411	362	520	248	270	272	[1] 4,099
Montana	54	62	59	71	54	53	49	48	36	56	26	52	620
New Jersey	417	448	462	480	425	491	417	364	417	373	361	329	4,984
New Mexico	54	56	132	80	150	72	114	125	142	87	133	155	1,300
New York	1,549	1,418	1,941	1,853	1,801	1,996	1,858	1,532	1,670	1,531	1,364	1,527	20,040
Ohio	599	606	682	824	668	648	586	493	688	751	505	520	7,570
Oklahoma	179	181	145	151	210	122	80	89	79	66	57	76	1,435
Oregon	64	73	79	70	89	58	66	81	59	46	67	91	843
Utah	15	17	17	14	14	13	15	11	13	17	16	12	174
Washington	199	157	200	148	175	167	123	131	130	127	164	118	1,839
Wisconsin	155	134	106	212	159	148	228	155	159	136	149	116	1,857

[1] Includes 14 cases for which the month is not given.

Tuberculosis (all forms)—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	204	241	263	252	234	188	208	188	163	172	187	196	2,496
Arizona	148	128	180	112	121	111	96	103	112	95	85	118	1,409
Arkansas	87	117	147	112	158	182	101	124	102	93	113	103	1,529
California	577	516	561	595	529	521	468	418	411	425	413	462	5,896
Colorado	126	127	147	146	153	123	130	106	124	116	109	129	1,536
Connecticut	104	94	113	113	112	108	110	77	87	71	76	90	1,155
Delaware	22	18	26	21	18	21	21	22	17	14	12	15	227
District of Columbia	33	43	60	54	48	52	48	46	45	27	43	45	544
Florida	91	73	108	77	96	82	76	80	66	78	85	87	999
Idaho	18	5	12	7	12	13	20	8	7	16	30	12	160
Illinois	487	427	554	514	495	509	476	386	418	403	402	458	5,529
Indiana	217	210	259	239	231	231	195	166	190	185	181	194	2,498
Iowa	87	97	88	84	88	85	95	75	74	75	70	71	989
Kansas	61	61	72	80	74	62	57	82	53	56	56	65	779
Kentucky	259	255	302	280	268	250	262	210	205	179	216	188	2,874
Louisiana	200	194	195	186	210	167	165	152	147	149	158	172	2,095
Maine	40	40	49	47	47	60	41	36	30	34	38	35	497
Maryland	165	165	184	176	181	166	152	153	125	132	145	146	1,890
Massachusetts	281	288	387	304	348	311	290	256	221	257	243	250	3,436
Michigan	214	254	289	275	268	223	222	213	210	206	222	234	2,830
Minnesota	128	116	154	183	159	142	131	122	111	96	118	125	1,585
Missouri	243	247	282	239	243	240	229	227	209	230	220	234	2,843
Montana	37	40	33	42	40	29	24	27	18	29	27	16	362
Nebraska	43	27	42	56	40	35	35	38	25	30	29	29	438
New Hampshire	27	28	29	33	32	21	25	21	20	24	15	15	290
New Jersey	250	238	296	254	299	258	247	227	215	195	200	228	2,907
New York	896	848	967	952	1,024	866	821	730	719	731	764	811	10,129
North Carolina	226	235	242	262	286	225	210	216	205	212	222	209	2,750
North Dakota	19	19	17	29	31	18	36	16	26	14	16	21	262
Ohio	407	446	456	429	418	431	425	380	327	383	307	407	4,816
Oklahoma	128	135	135	134	118	113	126	120	89	93	89	119	1,399
Oregon	52	48	58	52	45	54	40	35	31	43	43	36	537
Pennsylvania	603	611	715	692	669	608	600	572	512	531	521	603	7,237
Rhode Island	34	48	53	59	48	45	60	53	35	42	36	34	547
South Dakota	17	30	27	30	31	26	29	24	36	79	16	30	375
Tennessee	266	282	327	352	333	291	294	258	228	228	244	250	3,353
Texas	306	392	378	338	379	321	318	300	217	320	296	351	3,916
Utah	12	17	17	14	11	7	3	11	10	17	9	12	140
Vermont	15	20	22	24	32	29	13	16	17	26	19	15	248
Virginia	255	216	253	257	236	212	210	243	192	221	203	205	2,703
Washington	92	98	122	118	134	105	73	98	90	92	66	77	1,165
West Virginia	100	94	105	108	122	101	100	97	91	99	97	100	1,214
Wisconsin	138	136	159	167	156	156	136	120	113	117	137	122	1,657
Wyoming	7	7	6	8	5	2	4	3	3	5	3	8	61

Tuberculosis (all forms)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	3,833	1.55	2,496	1.01	1.5
Arizona	408,000			1,409	3.45	
Arkansas	1,853,000			1,529	.83	
California	4,021,000	9,701	2.41	5,896	1.47	1.6
Colorado	1,019,000	2,046	2.01	1,536	1.51	1.3
Connecticut	1,531,000	1,512	.99	1,155	.75	1.3
Delaware	235,000	443	1.89	227	.97	2.3
District of Columbia	498,000	1,238	2.49	544	1.09	2.0
Florida	1,091,000	1,503	1.38	999	.92	1.5
Georgia	3,058,000			2,448	.80	
Idaho	492,000			160	.33	
Illinois	6,965,000	13,994	2.01	5,529	.79	2.5
Indiana	3,060,000			2,498	.82	
Iowa	2,506,000			989	.39	
Kansas	1,814,000	2,440	1.35	779	.43	3.1
Kentucky	2,488,000			2,874	1.16	
Louisiana	1,879,000			2,095	1.11	
Maine	783,000			497	.63	
Maryland	1,537,000	3,433	2.23	1,890	1.23	1.8
Massachusetts	4,128,000	6,800	1.65	3,436	.83	2.0
Michigan	4,155,000	5,785	1.39	2,830	.68	2.0
Minnesota	2,564,000	3,871	1.51	1,585	.62	2.4
Mississippi	[1] 1,791,000	4,099	2.29	1,855	1.04	2.2
Missouri	3,467,000			2,843	.82	
Montana	647,000	620	.96	362	.56	1.7
Nebraska	1,355,000			438	.32	
New Hampshire	450,000			290	.64	
New Jersey	3,506,000	4,984	1.42	2,907	.83	1.7
New Mexico	379,000	1,300	3.43			
New York	11,106,000	20,040	1.80	10,129	.91	2.0
North Carolina	2,759,000			2,750	1.00	
North Dakota	686,000			262	.38	
Ohio	6,322,000	7,570	1.20	4,816	.76	1.6
Oklahoma	2,239,000	1,435	.64	1,399	.62	1.0
Oregon	846,000	843	1.00	537	.63	1.6
Pennsylvania	9,318,000			7,237	.78	
Rhode Island	639,000			547	.86	
South Dakota	666,000			375	.56	
Tennessee	2,425,000			3,353	1.38	
Texas	5,098,000			3,916	.77	
Utah	492,000	174	.35	140	.28	1.2
Vermont	[1] 352,000			248	.70	
Virginia	2,449,000			2,703	1.10	
Washington	1,478,000	1,830	1.24	1,165	.79	1.6
West Virginia	1,601,000			1,214	.76	
Wisconsin	2,801,000	1,857	.66	1,657	.59	1.1
Wyoming	222,000			61	.27	

[1] Population Jan. 1, 1920.

Tuberculosis (pulmonary)—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California	809	781	687	1,086	792	741	809	715	748	760	654	830	9,412
Connecticut	121	103	124	149	104	136	111	100	110	108	103	85	1,354
Delaware	51	59	41	35	31	40	42	25	27	17	16	21	405
District of Columbia	98	116	105	136	101	109	116	81	82	74	92	78	1,188
Illinois	897	1,147	1,127	1,085	1,135	1,171	1,023	818	1,121	1,006	1,324	1,793	13,647
Kansas	127	139	205	246	173	169	193	133	191	181	159	194	2,110
Louisiana	170	153	201	223	254	177	202	169	232	269	346	265	2,661
Maryland	212	216	289	323	332	309	356	260	290	249	227	204	3,267
Massachusetts	467	439	537	555	555	490	415	386	386	395	388	409	5,422
New York	1,454	1,362	1,829	1,743	1,704	1,861	1,777	1,431	1,574	1,455	1,289	1,460	18,939
Utah	13	16	16	11	13	10	14	9	12	17	14	10	155
Virginia	395	226	224	141	279	139	173	211	273	219	139	109	2,528
Washington	185	142	182	128	145	142	116	117	119	114	155	101	1,646

Tuberculosis (pulmonary)—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	185	203	243	223	209	167	196	173	145	153	169	181	2,252
Arkansas	84	112	138	104	148	165	96	116	96	85	108	184	1,436
California	521	453	494	517	464	453	404	370	374	374	357	405	5,186
Colorado	113	119	132	137	145	113	125	100	115	110	106	119	1,434
Connecticut	95	84	91	99	97	95	85	62	84	60	68	75	995
Delaware	19	15	25	16	15	17	20	17	16	12	11	13	196
District of Columbia	27	39	57	47	39	41	41	41	44	21	41	41	479
Florida	78	70	102	71	86	73	67	73	63	72	79	83	917
Idaho	17	4	11	6	9	13	19	5	7	14	19	11	135
Illinois	443	382	478	463	437	449	412	338	365	361	361	412	4,901
Indiana	190	188	218	211	192	189	165	141	168	153	144	167	2,126
Iowa	68	78	72	75	75	68	79	63	63	65	60	60	826
Kansas	49	51	62	68	61	52	47	69	51	48	50	55	663
Kentucky	226	227	276	255	245	214	230	185	172	163	194	168	2,555
Louisiana	182	181	178	167	193	156	153	139	133	138	141	157	1,918
Maine	29	33	35	39	35	48	32	27	24	28	34	28	392
Maryland	149	143	166	158	152	152	132	130	107	115	132	126	1,662
Massachusetts	242	242	338	251	282	254	237	197	196	223	209	218	2,889
Michigan	184	223	246	232	219	189	187	181	171	170	199	209	2,410
Minnesota	107	90	133	156	123	126	115	90	97	86	97	109	1,329
Missouri	219	221	258	210	217	212	203	202	178	205	198	207	2,530
Nebraska	31	24	36	50	35	27	27	29	22	32	27	27	367
Nevada	4	14	6	8	11	7	5	5	2	4	2	4	72
New Hampshire	21	19	23	28	24	19	23	18	17	18	12	13	235
New Jersey	229	210	264	228	270	219	217	207	187	172	177	203	2,589
New York	808	784	870	848	917	788	730	655	642	653	695	730	9,120
North Carolina	204	213	223	234	270	201	193	190	192	191	190	198	2,503
North Dakota	18	17	14	25	29	17	25	15	20	12	10	16	218
Ohio	337	390	389	358	351	353	355	305	273	332	264	353	4,060
Oregon	42	41	44	43	41	44	35	29	28	35	42	27	451
Pennsylvania	523	534	617	598	577	512	512	479	426	459	447	516	6,200
Rhode Island	25	41	42	51	38	36	50	41	25	39	31	26	445
South Dakota	16	24	26	23	30	24	23	23	33	71	13	22	328
Tennessee	248	247	290	303	283	250	252	209	199	196	216	219	2,921
Texas	285	378	354	321	361	294	291	274	201	293	282	338	3,672
Utah	10	16	16	11	10	4	2	9	9	17	7	10	121
Vermont	13	18	17	21	25	25	9	10	13	20	16	15	202
Virginia	222	196	230	223	213	182	186	211	169	197	188	189	2,406
Washington	78	83	104	98	104	80	66	84	79	79	57	60	972
West Virginia	90	88	92	96	110	90	88	87	78	86	83	88	1,076
Wisconsin	111	119	141	147	135	142	119	100	92	104	119	103	1,432

Tuberculosis (pulmonary)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1925

State	Estimated population, July 1, 1925	Cases reported, 1925	Cases per 1,000 inhabitants	Deaths registered, 1925	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000			2,252	0.91	
Arkansas	1,853,000			1,436	.77	
California	4,021,000	9,412	2.34	5,186	1.29	1.8
Colorado	1,019,000			1,434	1.41	
Connecticut	1,531,000	1,354	.88	995	.65	1.4
Delaware	235,000	405	1.72	196	.83	2.1
District of Columbia	498,000	1,188	2.39	479	.96	2.5
Florida	1,091,000			917	.84	
Georgia	3,058,000			2,246	.73	
Idaho	492,000			135	.27	
Illinois	6,965,000	13,647	1.96	4,901	.70	2.8
Indiana	3,060,000			2,126	.69	
Iowa	2,506,000			826	.33	
Kansas	1,814,000	2,110	1.16	663	.37	3.2
Kentucky	2,488,000			2,555	1.03	
Louisiana	1,879,000	2,661	1.42	1,918	1.02	1.4
Maine	783,000			392	.50	
Maryland	1,537,000	3,267	2.13	1,662	1.08	2.0
Massachusetts	4,128,000	5,422	1.31	2,889	.70	1.9
Michigan	4,155,000			2,410	.58	
Minnesota	2,564,000			1,329	.52	
Mississippi	[1] 1,791,000			1,712	.96	
Missouri	3,467,000			2,530	.73	
Nebraska	1,355,000			367	.27	
Nevada	[1] 77,000			72	.94	
New Hampshire	450,000			235	.52	
New Jersey	3,506,000			2,589	.74	
New York	11,106,000	18,939	1.71	9,120	.82	2.1
North Carolina	2,759,000			2,503	.91	
North Dakota	686,000			218	.32	
Ohio	6,322,000			4,060	.64	
Oregon	846,000			451	.53	
Pennsylvania	9,318,000			6,200	.67	
Rhode Island	630,000			445	.70	
South Dakota	666,000			328	.49	
Tennessee	2,425,000			2,921	1.20	
Texas	5,098,000			3,672	.72	
Utah	492,000	155	.32	121	.25	1.3
Vermont	[1] 352,000			202	.57	
Virginia	2,449,000	2,528	1.03	2,406	.98	1.1
Washington	1,478,000	1,646	1.11	972	.66	1.7
West Virginia	1,601,000			1,076	.67	
Wisconsin	2,801,000			1,432	.51	

[1] Population Jan. 1, 1920.

Typhoid fever—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	7	40	44	38	44	74	148	267	294	190	95	73	44	1,351
Arizona	6	3	1	1	1	3	9	10	10	10	11	4	7	70
Arkansas	7	37	20	13	17	18	38	112	159	129	121	78	41	785
California	7	56	31	47	41	66	105	136	131	115	119	75	57	979
Colorado	7	12	4	10	8	8	18	38	82	101	66	24	9	380
Connecticut	7	8	6	11	15	15	23	38	63	67	51	22	19	338
Delaware	5	4	2	3	1	3	5	6	20	17	18	10	10	99
District of Columbia	7	6	5	4	6	7	10	17	24	24	19	9	10	141
Florida	7	55	41	35	52	57	56	60	60	39	32	28	40	555
Georgia	6	23	22	19	22	51	113	205	226	152	112	47	33	1,025

Typhoid fever—Monthly estimated expectancy, based on data which are available for the years 1918 to 1924, inclusive—Continued

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Idaho	5	2	2	2	3	6	5	8	18	23	12	10	6	97
Illinois	7	89	73	71	58	63	68	166	233	268	240	173	105	1,607
Indiana	7	30	25	27	30	42	40	61	134	139	138	77	67	819
Kansas	7	17	12	11	20	33	56	134	237	150	111	54	27	862
Kentucky	2	49	32	35	28	37	48	155	187	173	115	95	57	1,012
Louisiana	7	44	37	45	52	85	112	135	152	129	94	77	99	1,061
Maine	7	10	11	12	9	14	14	26	35	30	45	32	16	254
Maryland	7	41	30	35	30	34	73	133	277	230	199	121	86	1,289
Massachusetts	7	38	32	41	44	45	45	69	113	130	97	59	44	757
Michigan	7	53	40	60	67	53	69	77	115	173	156	117	76	1,056
Minnesota	7	28	22	45	37	39	32	42	70	73	81	43	36	548
Mississippi	7	100	88	98	120	147	309	448	438	307	288	217	141	2,701
Missouri	3	23	17	23	12	23	25	87	146	152	106	67	34	715
Montana	7	8	3	10	9	11	13	25	23	37	22	12	10	183
Nebraska	7	7	5	4	3	4	3	9	12	29	28	11	8	123
Nevada	4	1	1	1	2	3	1	1	7	7	5	2	1	32
New Hampshire	5	2	1	2	4	3	1	2	8	9	9	3	2	46
New Jersey	7	31	22	26	28	29	45	61	102	112	91	70	54	671
New Mexico	5	15	9	5	6	10	17	28	41	75	85	48	30	369
New York	7	136	89	92	112	121	136	221	391	563	381	224	175	2,641
North Carolina	7	30	20	23	37	54	260	491	436	302	151	75	44	1,923
North Dakota	7	7	2	3	4	7	2	7	19	23	17	21	13	125
Ohio	7	116	63	68	66	122	119	253	337	468	330	165	107	2,214
Oklahoma	4	10	11	18	19	21	50	111	125	68	120	68	19	640
Oregon	7	7	4	5	4	7	11	14	25	25	29	15	15	161
Pennsylvania	7	146	111	112	101	151	165	273	411	495	473	268	182	2,888
Rhode Island	7	4	1	2	2	3	2	7	10	17	10	8	6	72
South Dakota	7	4	1	4	3	5	5	10	16	21	13	7	5	94
Tennessee	4	30	19	14	21	39	110	274	330	230	160	80	33	1,340
Texas	6	24	26	15	19	34	97	122	116	158	68	56	57	792
Utah	5	10	6	6	8	13	19	27	45	42	37	18	12	243
Vermont	7	6	6	3	3	9	6	5	12	16	10	11	5	92
Virginia	7	54	42	38	63	79	204	388	447	311	214	123	71	2,034
Washington	7	24	16	20	21	20	28	39	68	83	73	33	27	452
West Virginia	7	63	46	41	47	42	75	154	204	204	161	85	54	1,176
Wisconsin	7	23	16	20	23	27	20	27	34	38	38	39	20	325
Wyoming	7	1	1	4	2	3	4	7	9	14	9	4	1	59

Typhoid fever—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	59	48	58	57	159	288	356	534	304	262	142	78	2,345
Arizona	1	7	2	2	12	62	11	25	18	56	48	17	261
Arkansas	37	31	46	27	44	169	230	281	197	132	117	56	1,367
California	50	27	38	54	39	70	130	148	118	52	64	63	853
Colorado	12	11	7	8	10	15	49	71	87	65	58	25	418
Connecticut	15	13	12	10	19	14	17	41	35	42	17	30	265
Delaware	4	7	------	2	1	3	11	17	21	44	12	4	126
District of Columbia	31	6	6	4	9	8	9	14	16	7	11	5	126
Florida	65	55	41	81	62	66	87	49	77	57	45	35	720
Georgia	9	51	30	44	152	319	363	431	243	203	110	61	2,016
Idaho	------	7	6	11	8	4	------	14	22	15	10	1	98
Illinois	119	71	62	57	69	124	216	298	290	310	190	297	2,103
Indiana	55	20	21	25	39	45	147	219	176	172	72	38	1,029
Kansas	11	12	10	7	18	68	151	179	169	108	48	31	812
Kentucky	74	18	24	18	29	27	59	224	153	200	101	53	980
Louisiana	154	87	52	108	228	319	385	279	254	179	192	81	2,318
Maine	23	12	11	12	10	7	15	26	49	49	26	25	265
Maryland	46	26	27	24	17	42	101	254	281	253	123	76	1,270
Massachusetts	46	33	42	41	37	26	81	69	80	68	35	34	592
Michigan	54	31	37	38	33	31	69	114	153	216	84	103	963
Minnesota	13	28	30	10	13	6	33	43	51	57	25	25	334
Mississippi	123	126	91	134	319	653	851	737	516	391	309	139	[1] 4,415
Missouri	17	9	23	24	20	42	168	243	184	187	146	22	1,085
Montana	2	6	3	5	13	4	19	39	81	80	15	21	288
Nebraska	8	8	3	1	2	3	9	11	12	7	12	10	[illegible]

[1] Includes 26 cases for which the month is not given.

Typhoid fever—Cases reported, 1925—Continued

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Nevada			1		1	1		1	1	1	1		7
New Hampshire	1	1	8	2	1	1	4		1	7	2		28
New Jersey	48	26	48	25	28	34	102	101	146	121	44	50	773
New Mexico	12	5	3	7	3	26	25	52	77	93	81	21	405
New York	342	145	94	142	141	192	284	356	425	365	183	231	2,900
North Carolina	8	4	12	10	41	159	303	300	174	97	38	46	1,192
North Dakota	3	6	3	1	2	1	1	6	29	51	9	7	119
Ohio	91	49	46	42	58	91	125	356	436	391	187	74	1,946
Oklahoma	138	61	43	29	85	306	512	543	451	415	321	149	3,053
Oregon	10	17	11	14	9	14	23	54	38	34	18	21	263
Pennsylvania	95	70	88	69	74	117	198	330	562	479	206	149	2,437
Rhode Island	7	1	2	4	3	8	9	23	17	2	12	6	94
South Dakota	15	7	9		3	6	18	31	23	30	12	6	160
Tennessee	44	47	26	22	100	182	317	329	427	275	81	104	1,954
Texas	105	71	12	40	40	95	142	257	90	84	70	66	1,072
Utah	1	1	1	8	15	30	14	40	52	51	13	6	232
Vermont	4	3	7	3	1	1	1	5	7	1	1	6	40
Virginia	35	27	47	76	168	172	394	433	261	275	148	63	2,099
Washington	28	22	25	14	8	24	32	48	82	64	26	17	390
West Virginia	115	92	40	40	35	38	111	294	256	377	108	91	1,597
Wisconsin	14	8	6	25	9	9	14	22	60	51	40	26	284
Wyoming	1	8	32	2		3	4	9	8	15	12	3	97

Typhoid fever—Deaths registered, 1925

State	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Total
Alabama	14	11	18	17	31	44	67	65	63	35	37	25	427
Arizona	1	1		1	3	9	5	3	4	7	7	6	47
Arkansas	22	8	11	15	13	43	75	77	89	69	61	75	558
California	13	5	3	9	12	6	6	20	16	9	9	10	118
Colorado	4	2	5	4	3	6	10	14	21	11	7	4	91
Connecticut	3	2	6	4	2	1	1	3	4	4	3	6	39
Delaware	4	1		1		2	2	1	3	4	5	1	24
District of Columbia	7	2		1	1	1	3	2	3	2	2	1	25
Florida	11	11	11	18	22	15	21	16	20	11	16	15	187
Idaho	6	4	1		1	3		6	5	4	4	3	37
Illinois	24	5	11	5	12	19	32	60	54	44	31	29	326
Indiana	9	9	6	4	10	12	18	42	48	40	30	18	246
Iowa	7	2	4	2	9	5	7	11	9	9	9	6	80
Kansas	1	2	3	2	4	4	19	19	19	18	5	6	102
Kentucky	30	18	21	18	18	35	73	97	93	115	75	42	635
Louisiana	39	33	19	42	58	75	106	90	59	40	56	20	637
Maine	9	2	4	1	2	2	4	9	7	2	6	6	54
Maryland	7	4	3	4	1	3	13	17	19	18	16	11	116
Massachusetts	3	6	5	3	5	4	10	7	8	13	6	2	72
Michigan	15	9	14	5	11	4	11	17	20	19	20	12	157
Minnesota	3	4	3	5	1	2	1	2	5	10	7	3	46
Missouri	10	17	10	4	15	20	43	51	74	67	52	30	393
Montana			1		2		2		4	5	3	7	24
Nebraska		2	1	2				3	5	12	6	3	34
Nevada			1			1	1		1		1		5
New Hampshire	1	1	3	4		1	1		1		1	2	15
New Jersey	6	8	6	8	4	6	6	19	18	18	10	2	111
New York	74	30	11	21	24	30	18	42	50	39	26	34	399
North Carolina	8	1	9	5	14	35	45	53	49	26	18	14	277
North Dakota			1	1	1		2	2	5	6	4	1	23
Ohio	23	14	8	8	14	15	21	48	62	66	38	16	333
Oklahoma	21	14	17	7	7	32	46	61	60	64	54	21	404
Oregon	3	2	1	3	1	4	3	4	4	3	1	3	32
Pennsylvania	38	18	22	16	14	23	25	59	68	87	41	34	445
Rhode Island	4	2		1		1		3	2	1	4	2	20
South Dakota		4	2		4		1		3	3	2	4	23
Tennessee	20	13	14	14	20	44	89	91	109	104	85	38	641
Texas	24	24	20	21	29	44	80	93	59	70	64	58	586
Utah	1			1	1	2	2	2	6	3	6	1	25
Vermont	4		1		1				3			1	10
Virginia	12	5	6	8	27	20	45	47	37	47	31	14	299
Washington		5	4	4		3	8	3	11	8	5	2	53
West Virginia	16	20	12	8	7	18	27	37	39	75	37	38	334
Wisconsin	5	2	3	2	2	2	6	5	7	5	9	5	53
Wyoming		1	5	2			2	4		2	1	1	18

Typhoid fever—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925; estimated expectancy and indicated annual rates based on the years 1918–1924

State	Estimated population, July 1, 1925	Estimated expectancy			1925				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama	2,467,000	7	1,351	0.57	2,345	0.95	427	0.17	18.2
Arizona	408,000	6	70	.20	261	.64	47	.12	18.0
Arkansas	1,853,000	7	783	.44	1,367	.74	558	.30	40.8
California	4,021,000	7	979	.27	853	.21	118	.03	13.8
Colorado	1,019,000	7	380	.40	418	.41	91	.09	21.8
Connecticut	1,531,000	7	338	.18	265	.17	39	.03	14.7
Delaware	235,000	5	99	.43	126	.54	24	.10	19.0
District of Columbia	498,000	7	141	.32	126	.25	25	.05	19.8
Florida	1,091,000	7	555	.55	720	.66	187	.17	26.0
Georgia	3,058,000	6	1,025	.35	2,016	.66	675	.22	33.5
Idaho	492,000	5	97	.21	98	.20	37	.08	37.8
Illinois	6,965,000	7	1,607	.24	2,103	.30	326	.05	15.5
Indiana	3,060,000	7	819	.28	1,029	.34	246	.08	23.9
Iowa	2,506,000	------	------	------	------	------	80	.03	------
Kansas	1,814,000	7	862	.48	812	.45	102	.06	12.6
Kentucky	2,488,000	2	1,011	.41	980	.39	635	.26	64.8
Louisiana	1,879,000	7	1,061	.58	2,318	1.23	637	.34	27.5
Maine	783,000	7	254	.33	265	.34	54	.07	20.4
Maryland	1,537,000	7	1,289	.88	1,270	.83	116	.08	9.1
Massachusetts	4,128,000	7	757	.19	592	.14	72	.02	12.2
Michigan	4,155,000	7	1,056	.28	963	.23	157	.04	16.3
Minnesota	2,564,000	7	548	.23	334	.13	46	.02	13.8
Mississippi	[1] 1,791,000	7	2,701	1.51	4,415	2.47	470	.26	10.6
Missouri	3,467,000	3	715	.21	1,085	.31	393	.11	36.2
Montana	647,000	7	183	.32	238	.37	24	.04	10.1
Nebraska	1,355,000	7	123	.09	86	.06	34	.03	39.5
Nevada	[1] 77,000	4	32	.42	7	.09	5	.06	71.4
New Hampshire	450,000	5	46	.10	28	.06	15	.03	53.6
New Jersey	3,506,000	7	671	.21	773	.22	111	.03	14.4
New Mexico	379,000	5	369	1.00	405	1.07	------	------	------
New York	11,106,000	7	2,641	.25	2,900	.26	399	.04	13.8
North Carolina	2,759,000	7	1,923	.74	1,192	.43	277	.10	23.2
North Dakota	686,000	7	125	.19	119	.17	23	.03	19.3
Ohio	6,322,000	7	2,214	.37	1,946	.31	333	.05	17.1
Oklahoma	2,239,000	4	640	.30	3,053	1.36	404	.18	13.2
Oregon	846,000	7	161	.20	263	.31	32	.04	12.2
Pennsylvania	9,318,000	7	2,888	.33	2,437	.26	445	.05	18.3
Rhode Island	639,000	7	72	.12	94	.15	20	.03	21.3
South Dakota	666,000	7	94	.15	160	.24	23	.03	14.4
Tennessee	2,425,000	4	1,340	.56	1,954	.81	641	.26	32.8
Texas	5,098,000	6	792	.17	1,072	.21	586	.11	54.7
Utah	492,000	5	243	.53	232	.47	25	.05	10.8
Vermont	[1] 352,000	7	92	.26	40	.11	10	.03	25.0
Virginia	2,449,000	7	2,034	.87	2,090	.86	299	.12	14.2
Washington	1,478,000	7	452	.33	390	.26	53	.04	13.6
West Virginia	1,601,000	7	1,176	.78	1,597	1.00	334	.21	20.9
Wisconsin	2,801,000	7	325	.12	284	.10	53	.02	18.7
Wyoming	222,000	7	59	.29	97	.44	18	.08	18.6

[1] Population Jan. 1, 1920.

Typhus fever—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	------	------	------	1	2	6	3	10	9	9	7	6	53
Arizona	------	------	------	1	------	------	------	------	------	------	------	------	1
Connecticut	------	------	------	------	1	------	------	------	------	------	------	------	1
Florida	------	------	------	------	------	------	1	1	------	------	------	------	2
Georgia	------	------	------	1	1	1	3	8	7	4	7	1	33
Maryland	1	1	1	------	------	------	2	------	------	1	------	------	6
Massachusetts	------	------	2	------	------	------	------	------	------	------	------	------	2
New York	1	1	1	1	3	------	------	2	1	2	1	2	15
Texas	------	------	------	3	2	5	4	18	6	2	------	------	40

Typhus fever—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama					1						1	1	3
Florida												1	1
Maryland							1			1			2
New York							1						1
Virginia						1	1						2

Whooping cough—Average number of cases reported for the years 1922–1924, by months

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	100	157	306	162	267	177	148	118	70	73	60	91	1,729
Arizona	2	4	18	18	4	6	8	3	4	4	9	14	[1] 94
Arkansas	115	83	84	84	128	120	161	106	84	62	68	87	1,182
California	302	339	390	496	599	367	326	272	173	214	239	236	3,953
Colorado	85	73	95	159	167	143	140	112	64	34	29	64	1,165
Connecticut	296	201	195	169	156	150	234	175	166	174	245	206	2,367
Delaware	18	12	6	7	20	12	5	4	7	7	12	13	123
Dist. of Columbia	90	85	103	89	89	52	61	42	32	41	43	82	809
Florida	20	25	29	49	64	44	22	19	13	8	16	8	317
Georgia	73	97	98	61	102	72	68	50	27	39	32	41	760
Idaho	8	8	13	26	15	10	17	11	5	10	2	1	126
Illinois	698	678	815	752	711	856	982	848	633	564	663	746	8,946
Indiana	362	396	394	274	326	157	123	258	78	108	89	79	[2] 2,644
Iowa	57	30	46	40	44	47	39	8	12	20	31	48	[1] 422
Kansas	250	269	424	328	236	330	299	187	104	146	198	183	2,954
Kentucky	75	54	80	65	34	33	74	30	36	32	52	70	[1] 635
Louisiana	43	57	137	47	61	181	40	36	26	25	27	33	713
Maine	221	153	223	118	87	84	65	65	98	131	142	136	1,523
Maryland	286	238	284	267	302	281	280	217	194	210	271	267	3,097
Massachusetts	802	752	941	737	678	430	382	370	400	400	396	679	6,967
Michigan	431	410	529	573	557	614	707	607	375	325	341	406	5,875
Minnesota	65	92	147	187	189	148	117	95	86	89	92	88	1,395
Mississippi	771	1,072	1,350	1,334	1,263	1,260	890	626	566	499	578	583	10,792
Missouri	185	141	190	191	195	335	341	241	163	129	135	165	2,411
Montana	22	29	31	24	23	25	41	26	27	13	26	30	317
Nebraska	37	52	61	59	76	41	40	31	26	15	16	11	465
Nevada	10	8	5	4	4	1	1	2	2	1	1	3	42
New Hampshire	31	36	34	15	16	16	11	1	9	8	10	14	201
New Jersey	552	445	511	498	524	528	616	535	439	423	501	676	6,248
New Mexico	17	24	22	17	25	11	5	10	78	14	9	4	236
New York	1,698	1,570	1,666	1,623	1,562	1,478	1,534	1,400	1,227	1,216	1,286	1,524	17,784
North Carolina	1,223	1,168	1,373	1,293	1,437	1,183	1,075	697	554	561	664	746	11,974
North Dakota	24	32	39	31	31	34	18	22	30	42	31	19	353
Ohio	753	788	981	927	1,100	1,047	1,137	775	487	423	441	556	9,415
Oklahoma	3	56	7	38	44	27	15	5	6	22	12	70	[1] 305
Oregon	22	16	25	32	66	22	21	12	17	11	6	9	259
Pennsylvania	1,099	1,126	1,411	1,298	1,158	1,154	1,245	1,083	989	917	1,007	1,086	13,573
Rhode Island	41	27	29	17	28	24	28	20	19	22	25	16	296
South Dakota	50	31	29	18	17	18	28	24	23	21	41	39	339
Tennessee	224	268	271	360	177	231	150	102	134	96	91	184	2,288
Texas	52	151	135	152	174	237	196	152	146	87	115	81	1,678
Utah	127	310	267	446	508	333	310	143	134	123	133	140	[2] 2,974
Vermont	296	155	95	121	106	118	91	107	127	164	257	244	1,881
Virginia	2,675	2,487	2,189	2,201	1,824	1,549	1,334	886	405	699	698	763	[2] 17,710
Washington	128	139	223	367	245	178	147	125	69	73	48	52	1,794
West Virginia	157	190	241	242	182	216	197	136	124	67	93	138	1,983
Wisconsin	536	429	506	494	591	478	895	621	475	422	571	552	6,570
Wyoming	34	17	18	6	18	5	10	11	15	24	17	33	208

[1] Two years only. [2] One year only.

Whooping cough—Cases reported, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	123	119	55	107	220	195	112	115	65	85	58	48	1,302
Arizona	10	8	17	35	27	25	26	13	32	21	3	------	217
Arkansas	72	55	104	73	101	88	69	50	6	23	38	37	716
California	620	719	1,359	2,000	1,748	1,232	964	605	373	279	212	295	10,466
Colorado	37	30	57	45	64	133	147	118	86	82	80	148	1,027
Connecticut	306	197	292	400	481	458	410	323	256	161	235	224	3,743
Delaware	12	9	7	9	6	1	10	1	13	10	16	26	120
District of Columbia	53	44	64	72	72	60	76	77	79	52	36	60	745
Florida	24	22	82	44	77	36	39	35	32	40	31	31	493
Georgia	21	144	258	206	277	161	111	87	39	92	34	28	1,458
Idaho	2	9	45	32	43	44	23	73	6	38	26	51	392
Illinois	1,191	1,048	1,121	1,352	1,184	1,172	1,149	767	547	478	453	612	11,074
Indiana	132	124	109	128	167	178	268	190	117	214	240	215	2,082
Iowa	21	30	13	34	34	32	25	11	4	48	49	49	350
Kansas	187	124	151	193	236	440	333	286	160	169	262	248	2,789
Kentucky	81	104	47	47	82	68	49	61	58	38	51	31	717
Louisiana	28	31	49	92	81	81	86	71	56	82	41	33	731
Maine	107	32	15	24	26	13	27	45	39	81	159	87	655
Maryland	310	409	481	411	515	426	548	376	223	197	180	193	4,269
Massachusetts	529	602	700	622	664	522	619	600	723	715	718	1,063	8,077
Michigan	505	440	364	637	759	916	732	788	651	533	564	687	7,576
Minnesota	166	131	79	85	161	151	197	155	166	130	127	107	1,655
Mississippi	596	633	888	783	933	694	712	510	450	526	634	669	[1] 8,041
Missouri	60	121	112	104	165	200	219	179	188	145	71	87	1,651
Montana	115	49	28	21	50	17	62	53	52	32	42	64	585
Nebraska	15	21	24	27	65	52	65	28	56	30	51	69	503
Nevada	5	3	2	8	5	------	------	2	8	------	------	------	33
New Hampshire	9	3	8	90	4	------	------	11	11	------	------	12	148
New Jersey	1,037	888	1,327	1,085	924	791	691	391	295	158	145	197	7,929
New Mexico	7	8	29	46	30	39	20	58	48	43	71	58	457
New York	1,463	1,392	1,547	1,594	1,384	1,287	1,382	1,049	864	895	913	1,264	15,034
North Carolina	455	345	493	442	458	453	528	277	278	168	178	221	4,296
North Dakota	27	49	44	105	113	62	70	162	98	113	79	85	1,007
Ohio	660	547	690	848	851	1,024	1,035	874	632	492	593	729	8,975
Oklahoma	148	159	179	144	179	325	101	98	49	96	82	76	1,636
Oregon	32	43	63	98	106	96	41	52	68	75	70	107	851
Pennsylvania	1,161	979	1,197	1,006	1,092	1,193	1,239	1,208	1,095	890	973	987	13,020
Rhode Island	8	12	11	26	6	16	8	11	21	18	64	53	254
South Dakota	16	17	12	11	22	18	16	15	31	30	26	44	258
Tennessee	234	193	100	171	171	136	124	56	100	35	24	51	1,395
Texas	216	502	206	127	126	204	83	101	188	71	55	155	2,034
Utah	87	232	312	351	348	401	419	338	186	178	101	166	3,119
Vermont	80	151	89	13	30	36	41	58	71	132	156	128	985
Virginia	967	956	1,049	777	971	707	583	415	384	279	288	545	7,921
Washington	86	159	322	544	626	485	350	135	131	119	141	175	3,273
West Virginia	252	189	176	113	172	179	108	49	61	70	56	89	1,514
Wisconsin	483	402	383	413	451	433	662	690	779	400	501	642	6,239
Wyoming	4	------	10	31	74	16	12	12	3	9	5	15	191

[1] Includes 13 cases for which the month is not given.

Whooping cough—Deaths registered, 1925

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	17	21	37	29	30	19	19	19	5	9	13	9	227
Arizona	1	5	2	4	2	3	6	3	2	5	2	------	35
Arkansas	5	5	6	3	7	13	13	10	12	9	8	13	104
California	25	24	48	50	70	87	57	50	14	19	10	16	470
Colorado	2	4	5	7	10	4	10	10	8	7	9	15	91
Connecticut	9	5	11	12	10	10	5	13	7	10	13	6	111
Delaware	1	3	------	------	2	1	1	1	3	1	1	1	15
District of Columbia	3	------	1	2	------	------	------	6	4	2	1	2	21
Florida	6	6	6	6	9	8	11	6	2	1	2	3	66
Idaho	3	1	3	------	------	3	5	2	------	6	4	3	30
Illinois	24	28	26	37	33	30	38	36	20	23	15	7	317
Indiana	10	12	20	22	20	15	15	14	15	11	7	10	171
Iowa	3	2	2	4	5	3	7	10	11	6	7	12	72
Kansas	2	2	3	1	2	9	11	10	10	11	2	4	67
Kentucky	18	22	11	15	12	7	27	18	12	18	12	8	180
Louisiana	8	11	21	10	20	29	20	18	20	18	13	15	203
Maine	4	2	1	4	3	3	1	1	------	1	3	2	25
Maryland	5	16	16	17	16	6	24	21	16	9	11	7	164
Massachusetts	17	17	20	19	20	17	18	23	32	31	24	31	269
Michigan	14	19	10	30	27	27	24	36	29	15	12	17	260
Minnesota	8	8	7	6	7	4	5	19	8	11	8	6	97
Missouri	9	17	20	14	14	21	26	25	14	15	9	7	191
Montana	2	------	4	3	4	8	12	9	5	5	2	1	55
Nebraska	3	2	7	8	6	4	10	4	7	10	8	6	75
Nevada	------	------	------	------	------	------	------	------	1	------	------	------	1
New Hampshire	3	1	3	4	5	3	1	------	1	------	1	4	26
New Jersey	27	24	23	28	38	20	26	23	13	9	5	9	245
New York	24	50	50	58	50	42	42	49	27	34	21	34	481
North Carolina	15	9	14	14	18	12	18	10	11	8	10	11	150
North Dakota	6	2	3	2	3	5	4	6	4	7	5	1	48
Ohio	20	20	31	28	36	29	46	39	44	26	15	30	364
Oklahoma	23	5	7	13	4	16	17	10	1	14	5	15	130
Oregon	3	6	6	8	11	7	1	7	4	1	3	2	59
Pennsylvania	42	53	66	47	48	44	40	75	66	40	31	40	592
Rhode Island	3	5	6	4	7	3	5	4	5	5	5	6	58
South Dakota	1	1	1	2	1	2	2	3	3	7	3	1	27
Tennessee	7	17	9	14	21	26	21	8	7	10	14	9	163
Texas	8	6	6	9	18	13	7	6	6	9	4	10	102
Utah	------	2	------	6	9	3	1	2	1	6	2	3	35
Vermont	2	2	------	2	------	1	1	------	1	2	1	5	17
Virginia	24	29	24	28	21	22	16	30	20	17	11	5	247
Washington	1	4	3	4	13	17	10	12	10	4	2	5	85
West Virginia	18	11	25	10	11	5	26	13	17	11	6	9	162
Wisconsin	10	13	7	10	13	3	16	14	8	8	8	4	114
Wyoming	------	------	------	2	1	------	------	1	------	------	------	------	4

Whooping cough—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1925; average and indicated annual rates, based on the years

State	Estimated population, July 1, 1925	Average, 1922–1924		1925				
		Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,467,000	1,720	0.71	1,302	0.53	227	0.09	5.7
Arizona	408,000	[1] 94	.24	217	.53	35	.09	6.2
Arkansas	1,853,000	1,182	.65	716	.39	104	.06	6.9
California	4,021,000	3,953	1.04	10,466	2.60	470	.12	22.3
Colorado	1,019,000	1,165	1.18	1,027	1.01	91	.09	11.3
Connecticut	1,531,000	2,367	1.60	3,743	2.44	111	.07	33.7
Delaware	235,000	123	.53	120	.51	15	.06	8.0
District of Columbia	498,000	809	1.70	745	1.50	21	.04	35.5
Florida	1,091,000	317	.30	493	.45	66	.06	7.5
Georgia	3,058,000	760	.25	1,458	.48	313	.10	4.7
Idaho	492,000	126	.27	392	.80	30	.06	13.1
Illinois	6,965,000	8,946	1.32	11,074	1.59	317	.05	34.9
Indiana	3,060,000	[2] 2,644	.87	2,082	.68	171	.06	12.2
Iowa	2,506,000	[1] 422	.17	350	.14	72	.03	4.9
Kansas	1,814,000	2,954	1.64	2,789	1.54	67	.04	41.6
Kentucky	2,488,000	[1] 635	.26	717	.29	180	.07	4.0
Louisiana	1,879,000	713	.39	731	.39	203	.11	3.6
Maine	783,000	1,523	1.96	655	.84	25	.03	26.2
Maryland	1,537,000	3,097	2.06	4,269	2.78	164	.11	26.0
Massachusetts	4,128,000	6,967	1.73	8,077	1.96	269	.07	30.0
Michigan	4,155,000	5,875	1.48	7,576	1.82	260	.06	29.1
Minnesota	2,564,000	1,395	.56	1,655	.65	97	.04	17.1
Mississippi	[3] 1,791,000	10,792	6.03	8,041	4.49	127	.07	63.3
Missouri	3,467,000	2,411	.70	1,651	.48	191	.06	8.6
Montana	647,000	317	.52	585	.90	55	.09	10.6
Nebraska	1,355,000	465	.35	503	.37	75	.06	6.7
Nevada	[3] 77,000	42	.55	33	.43	1	.01	33.0
New Hampshire	450,000	201	.45	148	.33	26	.06	5.7
New Jersey	3,506,000	6,248	1.85	7,929	2.26	245	.07	32.4
New Mexico	379,000	236	.63	457	1.21			
New York	11,106,000	17,784	1.64	15,034	1.35	481	.04	31.3
North Carolina	2,759,000	11,974	4.46	4,296	1.56	150	.05	28.6
North Dakota	686,000	353	.53	1,007	1.47	48	.07	21.0
Ohio	6,322,000	9,415	1.54	8,975	1.42	364	.06	24.7
Oklahoma	2,239,000	[1] 305	.14	1,636	.73	130	.06	12.6
Oregon	846,000	259	.31	851	1.01	59	.07	14.4
Pennsylvania	9,318,000	13,573	1.49	13,020	1.40	592	.06	22.0
Rhode Island	639,000	296	.47	254	.40	58	.09	4.4
South Dakota	666,000	339	.52	258	.39	27	.04	9.6
Tennessee	2,425,000	2,288	.96	1,395	.58	163	.07	8.6
Texas	5,098,000	1,678	.34	2,034	.40	102	.02	19.9
Utah	492,000	[2] 2,074	6.23	3,119	6.34	35	.07	89.1
Vermont	[3] 352,000	1,881	5.34	985	2.80	17	.05	57.9
Virginia	2,449,000	[2] 17,710	7.31	7,921	3.23	247	.10	32.1
Washington	1,478,000	1,794	1.25	3,273	2.21	85	.06	38.5
West Virginia	1,601,000	1,983	1.28	1,514	.95	162	.10	9.3
Wisconsin	2,801,000	6,570	2.40	6,239	2.23	114	.04	51.7
Wyoming	222,000	208	.98	191	.86	4	.02	47.7

[1] Two years only. [2] One year only. [3] Population Jan. 1, 1920.

Hawaii Territory [1]—*Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925*

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rate per 1,000 inhabitants	Fatalities per 100 cases
Cerebrospinal meningitis:															
Cases	6	----	3	5	5	2	2	2	2	----	1	1	[2] 29	0.09	-----
Deaths	1	----	2	1	3	1	----	1	----	----	1	1	11	.03	37.9
Chicken pox:															
Cases	19	25	24	10	47	24	10	5	7	10	17	16	214	.66	-----
Diphtheria:															
Cases	27	24	29	15	22	25	24	21	35	14	29	35	300	.93	-----
Deaths	4	1	1	4	----	1	3	4	5	3	12	5	43	.13	14.3
Influenza:															
Cases	12	10	149	50	19	21	20	16	16	8	3	9	333	1.03	-----
Deaths	3	----	6	2	2	5	----	2	----	2	3	----	25	.08	7.5
Measles:															
Cases	14	47	122	120	71	59	37	24	9	14	44	38	599	1.85	-----
Deaths	----	4	4	4	2	4	7	----	1	----	1	3	30	.09	5.0
Mumps:															
Deaths	----	1	----	----	----	----	----	----	----	----	----	1	2	.01	-----
Pneumonia (all forms):															
Deaths	51	51	63	39	47	44	32	31	29	49	53	46	555	1.71	-----
Poliomyelitis:															
Deaths	----	----	----	----	----	----	----	----	1	----	----	----	1	.00	-----
Scarlet fever:															
Cases	2	----	4	1	3	----	4	1	1	2	----	4	22	.07	-----
Septic sore throat:															
Deaths	1	----	----	----	----	----	----	----	----	----	----	----	1	.00	-----
Smallpox:															
Cases	----	----	----	----	----	----	----	----	----	----	1	1	[3] 2	.01	-----
Deaths	----	----	----	----	----	----	----	----	----	----	1	----	[3] 1	.00	50.0
Tuberculosis (all forms):															
Cases	90	102	76	78	72	97	94	94	97	119	95	61	1,075	3.32	-----
Deaths	39	41	46	35	40	22	35	32	26	30	18	29	393	1.21	36.6
Tuberculosis (pulmonary):															
Cases	82	88	67	67	67	77	83	87	90	109	88	57	962	2.97	-----
Deaths	37	37	38	27	35	16	29	26	26	28	15	27	341	1.05	35.4
Typhoid fever:															
Cases	9	8	7	11	9	16	12	9	9	----	2	5	97	.30	-----
Deaths	----	2	----	1	2	2	3	3	1	1	2	----	17	.05	17.5
Whooping cough:															
Cases	1	6	6	3	1	6	1	1	2	1	1	----	29	.09	-----
Deaths	----	----	----	----	----	1	----	----	----	----	1	----	2	.01	6.9

[1] Estimated population July 1, 1925, 323,645.
[2] Includes 7 cases removed from vessels.
[3] Removed from vessels.

Philippine Islands [1]—*Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925*

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rate per 1,000 inhabitants	Fatalities per 100 cases
Anthrax:															
Deaths	8	6	8	14	8	8	8	11	7	14	16	18	126	-----	-----
Cerebrospinal meningitis:															
Cases	3	4	4	-----	4	4	-----	1	2	5	-----	1	28	.00	-----
Deaths	3	4	2	-----	4	4	-----	1	2	5	-----	1	26	.00	92.9
Chicken pox:															
Cases	142	250	233	129	91	44	66	69	37	47	100	83	1,291	.11	-----
Diphtheria:															
Cases	22	6	19	15	15	19	14	13	16	15	16	12	182	.02	-----
Deaths	16	3	12	10	10	9	8	6	9	9	3	3	98	.01	53.8
Influenza:															
Cases	929	759	811	632	565	647	707	1,228	2,900	2,640	1,615	1,509	14,962	1.31	-----
Deaths	346	305	378	317	308	350	356	449	521	700	562	506	5,098	.45	34.1
Malaria:															
Cases	5,257	4,756	5,099	4,770	4,508	4,403	4,862	5,109	4,770	4,975	4,366	5,060	57,935	5.06	-----
Deaths	2,037	1,839	2,194	1,873	1,981	1,949	2,246	2,181	1,967	2,145	1,941	1,976	24,329	2.13	42.0
Measles:															
Cases	147	157	245	123	125	171	253	195	204	89	154	249	2,112	.18	-----
Deaths	24	18	34	28	43	51	52	58	38	27	16	34	423	.04	20.0
Mumps:															
Deaths	-----	-----	-----	1	-----	1	-----	2	1	-----	-----	1	6	.00	-----
Pellagra:															
Deaths	-----	2	-----	-----	3	6	-----	1	-----	-----	-----	-----	12	.00	-----

[1] Estimated population July 1, 1925, 11,440,906.

Philippine Islands—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925—Continued

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rate per 1,000 inhabitants	Fatalities per 100 cases
Pneumonia:															
Deaths	203	162	231	171	222	191	219	214	195	203	195	229	2, 435	.21	-----
Poliomyelitis:															
Deaths	1	2	-----	2	-----	-----	2	-----	1	1	-----	4	13	.00	-----
Rabies in man:															
Deaths	11	6	14	3	7	8	10	9	9	10	9	7	103	-----	-----
Smallpox:															
Cases	6	4	6	3	-----	-----	-----	-----	-----	-----	-----	1	20	.00	-----
Deaths	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	1	.00	5.0
Tuberculosis (all forms):															
Cases	2, 890	2, 662	2, 901	2, 731	2, 729	2, 606	2, 930	3, 291	3, 065	3, 247	3, 004	2, 965	35, 027	3.06	-----
Deaths	2, 389	2, 167	2, 437	2, 259	2, 352	2, 248	2, 428	2, 770	2, 546	2, 719	2, 441	2, 483	29, 234	2.56	83.5
Tuberculosis (pulmonary):															
Cases	2, 708	2, 497	2, 675	2, 483	2, 522	2, 407	2, 701	3, 054	2, 871	3, 051	2, 847	2, 827	32, 643	2.85	-----
Deaths	2, 219	2, 002	2, 220	2, 023	2, 154	2, 049	2, 205	2, 552	2, 360	2, 536	2, 290	2, 348	26, 964	2.36	82.6
Typhoid fever:															
Cases	277	240	266	261	257	214	233	234	283	230	198	188	2, 881	.25	-----
Deaths	176	148	162	164	160	128	152	148	173	139	128	132	1, 810	.16	62.8
Whooping cough:															
Cases	169	156	139	157	104	78	140	174	239	220	329	163	2, 068	.18	-----
Deaths	96	76	93	88	79	60	91	99	108	129	117	84	1, 120	.10	54.2

Porto Rico [1]*—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1925*

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rate per 1,000 inhabitants	Fatalities per 100 cases
Anthrax:															
Cases	1	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	2	-----	-----
Deaths	1	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	2	-----	-----
Cerebrospinal meningitis:															
Cases	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	1	.00	-----
Chicken pox:															
Cases	-----	12	3	22	2	-----	1	4	-----	-----	3	25	72	.05	-----
Deaths	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	1	.00	1.4
Dengue:															
Cases	-----	-----	-----	1	-----	-----	-----	-----	-----	2	-----	-----	3	.00	-----
Diphtheria:															
Cases	53	32	36	25	26	24	22	19	35	35	26	28	361	.26	-----
Deaths	6	8	7	9	12	3	16	11	14	13	12	7	118	.08	32.7
Influenza:															
Deaths	168	115	71	24	9	8	5	5	7	4	6	7	420	.31	-----
Malaria:															
Cases	144	107	128	121	111	111	186	141	341	141	392	423	2, 346	1.68	-----
Deaths	144	107	128	121	111	111	186	141	116	141	141	161	1, 608	1.15	68.5
Measles:															
Cases	86	210	123	226	247	176	131	112	64	70	50	75	1, 570	1.12	-----
Deaths	39	45	123	117	143	86	131	112	64	51	50	75	1, 036	.74	66.0
Pellagra:															
Deaths	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	1	.00	-----
Pneumonia:															
Deaths	191	165	126	117	130	108	153	96	103	104	94	119	1, 506	1.08	-----
Rabies in animals:															
Cases	-----	-----	1	-----	-----	2	-----	-----	-----	-----	-----	-----	3	-----	-----
Scarlet fever:															
Cases	1	-----	-----	1	-----	-----	-----	2	-----	-----	1	-----	5	.00	-----
Deaths	-----	-----	-----	-----	-----	-----	-----	2	-----	-----	1	-----	3	.00	60.0
Tuberculosis (all forms):															
Deaths	257	287	302	262	279	185	333	245	266	273	281	264	3, 234	2.31	-----
Tuberculosis (pulmonary):															
Deaths	245	272	284	249	257	173	306	227	250	258	268	246	3, 035	2.17	-----
Typhoid fever:															
Cases	41	39	21	42	110	131	38	51	59	41	99	122	794	.57	-----
Deaths	12	12	10	9	24	17	38	27	21	24	29	28	251	.18	31.6
Whooping cough:															
Deaths	2	10	7	18	25	21	23	14	19	13	14	16	182	.13	-----

[1] Estimated population July 1, 1925, 1, 398,796.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended January 1, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	4
Chicken pox	33
Dengue	1
Diphtheria	45
Influenza	55
Lethargic encephalitis	2
Malaria	13
Measles	27
Mumps	12
Ophthalmia	1
Pellagra	2
Pneumonia	28
Scarlet fever	15
Smallpox	12
Tuberculosis	26
Typhoid fever	21
Whooping cough	49

ARIZONA

	Cases
Diphtheria	1
Measles	6
Mumps	1
Pellagra	1
Pneumonia	1
Tuberculosis	5

ARKANSAS

	Cases
Chicken pox	25
Diphtheria	12
Influenza	83
Malaria	24
Measles	1
Mumps	9
Scarlet fever	10
Tuberculosis	7
Typhoid fever	7
Whooping cough	6

CALIFORNIA

	Cases
Anthrax—Los Angeles	1
Cerebrospinal meningitis:	
San Francisco	1
Stockton	1
Chicken pox	229
Diphtheria	123
Influenza	36
Measles	753
Mumps	83
Scarlet fever	173
Smallpox	6
Tuberculosis	156
Typhoid fever	7

COLORADO

	Cases
Cerebrospinal meningitis	1
Chicken pox	23
Diphtheria	7
Influenza	5
Measles	20
Mumps	1
Pneumonia	17
Scarlet fever	65
Smallpox	30
Tuberculosis	3
Typhoid fever	1
Whooping cough	5

CONNECTICUT

	Cases
Cerebrospinal meningitis	1
Chicken pox	77
Diphtheria	34
German measles	2
Influenza	13
Lethargic encephalitis	1
Measles	28
Mumps	10

CONNECTICUT—continued

	Cases
Pneumonia (broncho)	40
Pneumonia (lobar)	43
Poliomyelitis	1
Scarlet fever	82
Septic sore throat	1
Tuberculosis (all forms)	24
Typhoid fever	5
Whooping cough	47

DELAWARE

Chicken pox	1
Measles	1
Pneumonia	4
Scarlet fever	34
Tuberculosis	1
Typhoid fever	1
Whooping cough	1

FLORIDA

Chicken pox	10
Diphtheria	43
Dysentery	10
Influenza	24
Malaria	28
Measles	10
Paratyphoid fever	2
Pneumonia	82
Poliomyelitis	2
Scarlet fever	14
Smallpox	30
Tetanus	9
Tuberculosis	103
Typhoid fever	16
Typhus fever	2
Whooping cough	5

GEORGIA

Anthrax	1
Chicken pox	19
Diphtheria	41
Influenza	81
Malaria	9
Measles	37
Mumps	5
Pellagra	2
Pneumonia	20
Poliomyelitis	1
Scarlet fever	19
Septic sore throat	1
Smallpox	52
Tetanus	1
Tuberculosis	8
Typhoid fever	7
Whooping cough	31

IDAHO

Cerebrospinal meningitis—Standpoint	1
Chicken pox	19
Diphtheria	1
Influenza	1
Measles	54
Mumps	7
Pneumonia (broncho)	1
Scarlet fever	32
Smallpox	1
Tuberculosis	1
Typhoid fever	1

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	2
Lake County	1
St. Clair County	1
Chicken pox	335
Diphtheria	110
Influenza	32
Lethargic encephalitis:	
Cook County	1
Madison County	1
Measles	823
Mumps	153
Pneumonia	354
Scarlet fever	286
Smallpox	31
Tuberculosis	225
Typhoid fever	26
Whooping cough	150

INDIANA

Cerebrospinal meningitis	1
Chicken pox	174
Diphtheria	86
Influenza	66
Measles	117
Pneumonia	13
Scarlet fever	213
Smallpox	131
Trachoma	5
Tuberculosis	32
Typhoid fever	2
Whooping cough	49

IOWA

Chicken pox	26
Diphtheria	20
Measles	91
Mumps	8
Pneumonia	3
Scarlet fever	93
Smallpox:	
Afton	10
Scattering	12
Tuberculosis	37

KANSAS

Cerebrospinal meningitis—Topeka	2
Chicken pox	140
Diphtheria	25
Influenza	18
Lethargic encephalitis	1
Measles	76
Mumps	6
Ophthalmia neonatorum	1
Pneumonia	60
Poliomyelitis—Hartford	1
Scarlet fever	97
Smallpox:	
Topeka	11
Scattering	26
Tuberculosis	41
Typhoid fever	3
Whooping cough	26

LOUISIANA

Diphtheria	22
Influenza	9
Malaria	8

LOUISIANA—continued

	Cases
Measles	38
Pneumonia	18
Poliomyelitis	1
Scarlet fever	16
Smallpox	4
Tuberculosis	23
Typhoid fever	12

MAINE

Chicken pox	63
Diphtheria	5
German measles	5
Influenza	13
Measles	112
Mumps	10
Pneumonia	18
Scarlet fever	17
Tuberculosis	4
Typhoid fever	1
Vincent's angina	5
Whooping cough	41

MARYLAND [1]

Cerebrospinal meningitis	1
Chicken pox	91
Diphtheria	44
Dysentery	1
Influenza	36
Lethargic encephalitis	1
Measles	24
Mumps	10
Paratyphoid fever	1
Pneumonia (broncho)	44
Pneumonia (lobar)	56
Scarlet fever	69
Septic sore throat	1
Tuberculosis	27
Typhoid fever	16
Vincent's angina	1
Whooping cough	47

MASSACHUSETTS

Chicken pox	286
Conjunctivitis (suppurative)	5
Diphtheria	121
German measles	10
Influenza	17
Measles	122
Mumps	204
Ophthalmia neonatorum	6
Pneumonia (lobar)	105
Poliomyelitis	1
Scarlet fever	405
Septic sore throat	5
Trachoma	2
Tuberculosis (pulmonary)	76
Tuberculosis (other forms)	25
Typhoid fever	19
Whooping cough	121

MICHIGAN

Diphtheria	116
Measles	107
Pneumonia	146
Scarlet fever	321

[1] Week ended Friday.

MICHIGAN—continued

	Cases
Smallpox	26
Tuberculosis	34
Typhoid fever	8
Whooping cough	113

MINNESOTA

Chicken pox	192
Diphtheria	38
Measles	96
Pneumonia	2
Poliomyelitis	1
Scarlet fever	224
Smallpox	2
Tuberculosis	28
Typhoid fever	3
Whooping cough	26

MISSISSIPPI

Cerebrospinal meningitis	1
Diphtheria	17
Poliomyelitis	1
Scarlet fever	19
Smallpox	11
Typhoid fever	1

MISSOURI

(Exclusive of Kansas City)

Chicken pox	41
Diphtheria	55
Epidemic sore throat	1
Influenza	20
Measles	63
Mumps	14
Pneumonia	2
Rabies	3
Scarlet fever	81
Smallpox	1
Tuberculosis	34
Typhoid fever	3
Whooping cough	19

MONTANA

Cerebrospinal meningitis	2
Diphtheria	3
Measles	137
Mumps	10
Scarlet fever	51
Smallpox	10
Tuberculosis	2
Typhoid fever [2]	12
Whooping cough	1

NEBRASKA

Cerebrospinal meningitis	1
Chicken pox	49
Diphtheria	15
German measles	4
Influenza	6
Measles	35
Mumps	10
Pneumonia	22
Scarlet fever	46
Septic sore throat	8
Smallpox	28

[2] Includes delayed reports.

NEBRASKA—continued

	Cases
Tuberculosis	3
Typhoid fever	4
Whooping cough	13

NEW JERSEY

	Cases
Cerebrospinal meningitis	1
Chicken pox	197
Diphtheria	144
Dysentery	1
Influenza	32
Measles	49
Pneumonia	244
Scarlet fever	240
Typhoid fever	4
Whooping cough	150

NEW MEXICO

	Cases
Cerebrospinal meningitis	1
Chicken pox	22
Diphtheria	3
German measles	2
Measles	11
Mumps	1
Pneumonia	16
Rabies (in animals)	1
Scarlet fever	28
Trachoma	1
Tuberculosis	8
Typhoid fever	5
Whooping cough	12

NEW YORK

(Exclusive of New York City)

	Cases
Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	410
Diphtheria	100
Dysentery	2
German measles	129
Lethargic encephalitis	5
Malaria	1
Measles	941
Mumps	143
Ophthalmia neonatorum	1
Pneumonia	326
Poliomyelitis	5
Scarlet fever	273
Septic sore throat	1
Smallpox	12
Typhoid fever	20
Vincent's angina	21
Whooping cough	183

NORTH CAROLINA

	Cases
Cerebrospinal meningitis	1
Chicken pox	88
Diphtheria	53
German measles	1
Measles	88
Scarlet fever	46
Smallpox	76
Typhoid fever	3
Whooping cough	188

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Chicken pox	15
Diphtheria	30
Influenza	174
Measles	46
Pneumonia	100
Poliomyelitis:	
Beaver County	1
Blaine County	1
Scarlet fever:	
Beaver County [2]	14
Scattering	28
Smallpox	18
Typhoid fever	15
Whooping cough	9

OREGON

	Cases
Chicken pox	34
Diphtheria	13
Influenza	42
Measles	30
Mumps	5
Pneumonia	[3] 8
Scarlet fever	58
Septic sore throat	1
Smallpox	29
Tuberculosis	[3] 4
Typhoid fever	2
Whooping cough	3

RHODE ISLAND

	Cases
Chicken pox	5
Diphtheria	13
Influenza	12
Measles	1
Mumps	2
Pneumonia	4
Scarlet fever	14
Tuberculosis	3
Whooping cough	6

SOUTH CAROLINA

	Cases
Chicken pox	112
Diphtheria	32
Hookworm disease	11
Influenza	696
Malaria	147
Measles	30
Paratyphoid fever	1
Pellagra	19
Poliomyelitis	1
Scarlet fever	27
Smallpox	9
Tuberculosis	42
Typhoid fever	13
Whooping cough	37

SOUTH DAKOTA

	Cases
Chicken pox	31
Diphtheria	8
Measles	86
Mumps	8
Pneumonia	14
Scarlet fever	68
Smallpox	10

[2] Includes delayed reports.

[3] Deaths.

SOUTH DAKOTA—continued

	Cases
Tuberculosis	1
Typhoid fever	1
Whooping cough	6

TENNESSEE

Cerebrospinal meningitis—White County	1
Chicken pox	39
Diphtheria	23
Influenza	45
Lethargic encephalitis—Loudon County	1
Malaria	2
Measles	16
Mumps	1
Pellagra	2
Pneumonia	50
Scarlet fever	40
Tetanus	1
Tuberculosis	15
Typhoid fever	16
Whooping cough	80

TEXAS

Cerebrospinal meningitis	1
Chicken pox	16
Diphtheria	61
Influenza	49
Lethargic encephalitis	1
Measles	4
Mumps	15
Paratyphoid fever	1
Pneumonia	9
Scarlet fever	53
Smallpox	60
Trachoma	2
Tuberculosis	11
Typhoid fever	28
Whooping cough	5

UTAH

Chicken pox	20
Diphtheria	8
Influenza	2
Measles	367
Mumps	21
Pneumonia	12
Scarlet fever	1
Smallpox	4

VERMONT

Chicken pox	32
Diphtheria	1
Measles	51
Mumps	11
Pneumonia	1
Scarlet fever	2
Whooping cough	20

WASHINGTON

	Cases
Chicken pox	85
Diphtheria	24
German measles	11
Measles	164
Mumps	40
Pneumonia	1
Scarlet fever	66
Smallpox	45
Tuberculosis	26
Typhoid fever	3
Whooping cough	14

WEST VIRGINIA

Chicken pox	114
Diphtheria	25
Influenza	47
Measles	61
Scarlet fever	46
Smallpox	6
Tuberculosis	7
Typhoid fever	7
Whooping cough	45

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	4
Chicken pox	44
Diphtheria	23
Influenza	3
Measles	30
Mumps	11
Pneumonia	23
Scarlet fever	22
Tuberculosis	19
Whooping cough	53
Scattering:	
Cerebrospinal meningitis	4
Chicken pox	171
Diphtheria	30
German measles	9
Influenza	27
Measles	549
Mumps	57
Pneumonia	20
Scarlet fever	96
Smallpox	17
Tuberculosis	20
Typhoid fever	4
Whooping cough	91

WYOMING

Chicken pox	10
Diphtheria	2
German measles	16
Measles	75
Scarlet fever	39
Whooping cough	7

Reports for Week Ended December 25, 1926

ALABAMA

	Cases
Chicken pox	27
Dengue	1
Diphtheria	59
Influenza	19
Lethargic encephalitis	1
Malaria	37
Measles	17
Mumps	2
Pellagra	2
Pneumonia	36
Poliomyelitis	3
Scarlet fever	19
Smallpox	82
Tetanus	6
Tuberculosis	117
Typhoid fever	52
Typhus fever	3
Whooping cough	24

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Albany	1
National City	1
Chicken pox	160
Diphtheria	99
Influenza	11
Leprosy—Fresno County	1
Lethargic encephalitis—Pomona	1
Measles	460
Mumps	49
Scarlet fever	138
Smallpox:	
Placer County	7
San Francisco	2
Tuberculosis	60
Typhoid fever	15
Whooping cough	41

DISTRICT OF COLUMBIA

	Cases
Chicken pox	38
Diphtheria	27
Measles	1
Pneumonia	26
Scarlet fever	14
Tuberculosis	20
Typhoid fever	1
Whooping cough	5

GEORGIA

	Cases
Chicken pox	32
Diphtheria	45
Dysentery	1
Hookworm disease	32
Influenza	27
Malaria	11
Measles	17
Mumps	4
Paratyphoid fever	1
Pellagra	3
Pneumonia	21
Scarlet fever	16
Septic sore throat	7
Smallpox	76
Tuberculosis	10
Typhoid fever	6

GEORGIA—continued

	Cases
Typhus fever	1
Whooping cough	16

INDIANA

	Cases
Cerebrospinal meningitis	1
Chicken pox	57
Diphtheria	28
Influenza	19
Measles	72
Pneumonia	5
Scarlet fever	103
Smallpox	79
Tuberculosis	5
Typhoid fever	4
Whooping cough	22

IOWA

	Cases
Cerebrospinal meningitis:	
Iowa City	1
Muscatine	1
Chicken pox	35
Diphtheria	30
German measles	1
Measles	46
Mumps	4
Pneumonia	2
Scarlet fever	27
Smallpox	6
Tuberculosis	6
Typhoid fever	1
Whooping cough	10

MINNESOTA

	Cases
Chicken pox	247
Diphtheria	34
Measles	142
Pneumonia	2
Poliomyelitis	1
Scarlet fever	207
Smallpox	8
Tuberculosis	34
Typhoid fever	2
Whooping cough	10

MISSISSIPPI

	Cases
Cerebrospinal meningitis	1
Diphtheria	15
Scarlet fever	9
Smallpox	32
Typhoid fever	5

MISSOURI

(Exclusive of Kansas City)

	Cases
Chicken pox	47
Diphtheria	38
Measles	66
Mumps	2
Rabies	1
Scarlet fever	64
Smallpox	1
Trachoma	1
Tuberculosis	13
Typhoid fever	4
Whooping cough	25

NEBRASKA

	Cases
Chicken pox	46
Diphtheria	6
German measles	5
Measles	13
Mumps	11
Pneumonia	1
Scarlet fever	47
Smallpox	9
Whooping cough	8

NEW MEXICO

	Cases
Chicken pox	19
Diphtheria	1
German measles	4
Measles	5
Mumps	1
Pneumonia	3
Scarlet fever	15
Tuberculosis	4
Typhoid fever	3
Whooping cough	4

NORTH CAROLINA

	Cases
Cerebrospinal meningitis	1
Chicken pox	102
Diphtheria	86
German measles	4
Measles	36
Scarlet fever	74
Smallpox	19
Typhoid fever	6
Whooping cough	193

NORTH DAKOTA

	Cases
Chicken pox	35
Diphtheria	11
Measles	94
Mumps	13
Pneumonia	12
Scarlet fever	64
Smallpox	6
Tuberculosis	5
Whooping cough	6

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Chicken pox	40
Diphtheria	26
Influenza	121
Measles	9
Pneumonia	59
Poliomyelitis—Okmulgee County	1
Scarlet fever	48
Smallpox	35
Typhoid fever	13
Whooping cough	14

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Dauphin County	1
Chicken pox	680
Diphtheria	189
German measles	12
Impetigo contagiosa	11
Measles	413
Mumps	88

PENNSYLVANIA—continued

	Cases
Ophthalmia	7
Pneumonia	89
Poliomyelitis:	
Delaware County	1
Philadelphia	1
Scabies	4
Scarlet fever	405
Smallpox	1
Tuberculosis	100
Typhoid fever	19
Whooping cough	206

RHODE ISLAND

	Cases
Chicken pox	10
Diphtheria	1
Influenza	6
Measles	2
Pneumonia	2
Scarlet fever	7
Tuberculosis	2
Whooping cough	11

SOUTH CAROLINA

	Cases
Chicken pox	69
Diphtheria	41
Hookworm disease	15
Influenza	843
Malaria	89
Measles	9
Paratyphoid fever	2
Pellagra	25
Scarlet fever	19
Smallpox	11
Tuberculosis	44
Typhoid fever	12
Whooping cough	43

TENNESSEE

	Cases
Cerebrospinal meningitis—Weakly County	1
Chicken pox	48
Diphtheria	18
Influenza	55
Malaria	4
Measles	4
Mumps	1
Pneumonia	30
Scarlet fever	21
Smallpox	6
Trachoma	1
Tuberculosis	13
Typhoid fever	21
Whooping cough	27

TEXAS

	Cases
Chicken pox	16
Diphtheria	52
Dysentery	3
Influenza	22
Measles	9
Mumps	3
Pneumonia	6
Scarlet fever	38
Smallpox	24
Trachoma	2
Tuberculosis	16
Typhoid fever	1

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	1
Chicken pox	60
Diphtheria	28
German measles	3
Measles	37
Mumps	21
Pneumonia	19
Scarlet fever	25
Whooping cough	53
Scattering:	
Chicken pox	225
Diphtheria	17
German measles	11
Influenza	20
Measles	551

WISCONSIN—continued

	Cases
Scattering—Continued	
Mumps	70
Pneumonia	25
Scarlet fever	111
Smallpox	6
Tuberculosis	27
Typhoid fever	6
Whooping cough	109

WYOMING

	Cases
Chicken pox	25
Diphtheria	1
Measles	5
Mumps	1
Scarlet fever	2

Report for Week Ended December 18, 1926

DISTRICT OF COLUMBIA	Cases
Chicken pox	14
Diphtheria	25
Influenza	2
Pneumonia	18

DISTRICT OF COLUMBIA—continued	Cases
Scarlet fever	19
Tuberculosis	25
Whooping cough	16

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1926										
Alabama	2	356	266	230	10	17	3	106	17	137
California	9	728	69	9	2,824	6	18	1,079	83	64
Delaware		8			1		0	78	0	1
Indiana	1	406	97		140		3	617	327	86
Kansas	2	134	21		395		2	104	35	35
Maine	1	13	5		368		3	161	0	6
Mississippi	1	214	2,981	1,446	271	314	4	147	24	139
Missouri	1	296	61	2	175		0	512	6	83
Montana	4	9	3		570		1	410	24	5
North Carolina	4	708		24	40		5	400	0	85
Oklahoma [1]	4	219	581	180	51	17	4	142	173	188
Oregon	1	71	88		66		1	304	80	18
South Carolina		706	2,322	1,315	20	131	8	98	29	112
Washington	10	229	21		361		1	371	94	53

[1] Exclusive of Tulsa and Oklahoma City.

November, 1926	Cases
Anthrax:	
Missouri	1
Chicken pox:	
Alabama	45
California	1,092
Delaware	12
Indiana	473
Kansas	562
Maine	375
Mississippi	409
Missouri	393
Montana	162
North Carolina	316
Oklahoma	64

	Cases
Chicken pox—Continued	
Oregon	168
South Carolina	180
Washington	595
Dengue:	
Alabama	4
Mississippi	45
South Carolina	19
Dysentery:	
California (amebic)	4
California (bacillary)	7
Mississippi (amebic)	55
Mississippi (bacillary)	248
Oklahoma	8
Washington	1

	Cases
German measles:	
California	48
Kansas	6
Maine	5
Montana	2
North Carolina	15
Washington	37
Glanders:	
Missouri	1
Hookworm disease:	
California	1
Mississippi	371
South Carolina	103
Impetigo contagiosa:	
Oregon	20
Lethargic encephalitis:	
Alabama	6
California	4
Kansas	1
Washington	3
Mumps:	
Alabama	19
California	712
Delaware	1
Indiana	1
Kansas	53
Maine	9
Mississippi	222
Missouri	26
Montana	17
Oklahoma	4
Oregon	47
Washington	125
Ophthalmia neonatorum:	
California	7
Mississippi	18
Missouri	2
Montana	1
Oklahoma	2
Paratyphoid fever:	
California	2
Kansas	2
Maine	1
Oregon	3
South Carolina	10
Washington	1

	Cases
Puerperal septicemia: Mississippi	32
Rabies in animals:	
California	40
Mississippi	10
Missouri	15
South Carolina	15
Scabies:	
Oregon	14
Washington	2
Septic sore throat:	
Kansas	5
Missouri	18
Montana	1
North Carolina	14
Oregon	4
Washington	1
Tetanus:	
California	4
Missouri	2
Oklahoma	1
Trachoma:	
California	25
Kansas	2
Mississippi	9
Missouri	13
Oklahoma	5
Oregon	2
Typhus fever: Alabama	4
Vincent's angina: Maine	3
Whooping cough:	
Alabama	123
California	312
Delaware	12
Indiana	367
Kansas	228
Maine	164
Mississippi	939
Missouri	258
Montana	14
North Carolina	1,074
Oklahoma	101
Oregon	27
South Carolina	148
Washington	85

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended December 18, 1926, 41 States reported 2,034 cases of diphtheria. For the week ended December 19, 1925, the same States reported 1,986 cases of this disease. Ninety-seven cities, situated in all parts of the country and having an aggregate population of nearly 30,000,000, reported 1,089 cases of diphtheria for the week ended December 18, 1926. Last year for the corresponding week they reported 902 cases. The estimated expectancy for these cities was 1,287 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-eight States reported 5,868 cases of measles for the week ended December 18, 1926, and 6,074 cases of this disease for the week ended December 19, 1925. Ninety-seven cities reported

1,108 cases of measles for the week this year, and 2,743 cases last year.

Poliomyelitis.—The health officers of 41 States reported 19 cases of poliomyelitis for the week ended December 18, 1926. The same States reported 25 cases for the week ended December 19, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty-one States—this year, 4,034 cases; last year, 3,944 cases; 97 cities—this year, 1,605 cases; last year, 1,318 cases; estimated expectancy, 1,054 cases.

Smallpox.—For the week ended December 18, 1926, 41 States reported 669 cases of smallpox. Last year for the corresponding week they reported 552 cases. Ninety-seven cities reported smallpox for the week as follows: 1926, 95 cases; 1925, 114 cases; estimated expectancy, 71 cases. One death from smallpox was reported by these cities for the week this year—at Charleston, W. Va.

Typhoid fever.—Three hundred and seventy-one cases of typhoid fever were reported for the week ended December 18, 1926, by 41 States. For the corresponding week of 1925 the same States reported 527 cases of this disease. Ninety-seven cities reported 71 cases of typhoid fever for the week this year and 90 cases for the corresponding week last year. The estimated expectancy for these cities was 72 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 91 cities, with a population of nearly 29,300,000, as follows: 1926, 858 deaths; 1925, 892 deaths.

City reports for week ended December 18, 1926

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	27	2	0	0	0	0	0	5
New Hampshire:									
Concord	22,546	0	0	0	0	0	59	0	0
Manchester	83,097	0	4	0	0	0	1	0	3
Vermont:									
Barre	10,008	1	0	0	0	0	20	0	0

City reports for week ended December 18, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.									
Massachusetts:									
Boston	779,620	80	64	41	1	2	12	40	25
Fall River	128,993	1	5	6	0	0	0	9	1
Springfield	142,065	14	5	2	0	0	1	1	1
Worcester	190,757	19	5	7	1	0	1	3	6
Rhode Island:									
Pawtucket	69,760	7	2	0	0	0	0	0	3
Providence	267,918	0	10	6	0	0	1	0	6
Connecticut:									
Bridgeport	(1)	5	10	4	4	1	1	1	3
Hartford	160,197	4	9	0	0	0	2	2	5
New Haven	178,927	17	4	2	1	0	0	1	8
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	59	26	13	--------	0	3	2	11
New York	5,873,356	241	230	199	87	20	14	144	184
Rochester	316,786	16	10	10	--------	0	5	1	6
Syracuse	182,003	26	9	4	--------	0	12	5	6
New Jersey:									
Camden	128,642	10	5	12	1	0	0	0	5
Newark	452,513	37	20	8	11	0	1	8	9
Trenton	132,020	1	8	1	1	0	0	0	4
Pennsylvania:									
Philadelphia	1,979,364	209	84	72	--------	5	1	20	45
Pittsburgh	631,563	61	26	15	--------	2	13	2	24
Reading	112,707	21	5	1	--------	0	0	5	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	21	17	9	0	3	2	45	11
Cleveland	936,485	133	42	100	1	2	4	4	19
Columbus	279,836	13	7	10	0	0	2	1	6
Toledo	287,380	72	16	10	0	1	4	0	5
Indiana:									
Fort Wayne	97,846	9	5	1	0	0	7	0	5
Indianapolis	358,819	84	13	21	0	0	1	1	10
South Bend	80,091	5	2	2	0	0	7	0	0
Terre Haute	71,071	4	3	1	0	0	0	0	0
Illinois:									
Chicago	2,995,239	115	140	75	13	8	246	49	63
Peoria	81,564	19	2	2	0	1	80	14	1
Springfield	63,923	16	2	2	0	0	42	1	3
Michigan:									
Detroit	1,245,824	126	71	74	11	2	7	34	27
Flint	130,316	28	11	2	0	1	0	0	8
Grand Rapids	153,698	12	6	0	0	1	0	0	3
Wisconsin:									
Kenosha	50,891	17	1	0	0	0	25	10	0
Madison	46,385	21	1	4	0	0	6	0	2
Milwaukee	509,192	91	28	15	1	1	32	27	16
Racine	67,707	36	4	1	0	0	0	17	1
Superior	39,671	--------	1	--------	--------	--------	--------	--------	--------
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	7	2	0	0	0	23	0	3
Minneapolis	425,435	222	22	9	0	1	0	0	9
St. Paul	246,001	50	20	8	0	3	8	1	9
Iowa:									
Davenport	52,469	2	2	1	0	--------	7	1	--------
Sioux City	76,411	4	3	0	0	--------	1	0	--------
Waterloo	36,771	31	2	0	0	--------	1	0	--------
Missouri:									
Kansas City	367,481	35	14	8	2	2	8	2	15
St. Joseph	78,342	3	4	0	0	0	1	1	3
St. Louis	821,543	30	56	35	2	1	3	8	--------
North Dakota:									
Fargo	26,403	3	1	0	0	0	0	1	2

[1] No estimate made.

City reports for week ended December 18, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued									
South Dakota:									
Aberdeen	15,036	15	0	0	0		0	0	
Sioux Falls	30,127	3	1	0	0		0	0	
Nebraska:									
Omaha	211,768	9	6	3	0	0	7	2	6
Kansas:									
Topeka	55,411	63	2	1	0	0	2	0	7
Wichita	88,367	30	7	0	0	0	0	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	2	4	2	0	0	0	0	3
Maryland:									
Baltimore	796,296	122	34	45	8	5	7	11	22
Cumberland	33,741	3	2	1	0	0	0	0	1
Frederick	12,035	0	0	0	0	9	0	0	0
District of Columbia:									
Washington	497,906	44	20	25	2	6	0	0	8
Virginia:									
Lynchburg	30,395	1	2	5	0	1	0	0	1
Norfolk	(1)		4						
Richmond	186,403	5	11	6	0	0	24	1	6
Roanoke	58,208	3	3	0	0	0	0	0	1
West Virginia:									
Charleston	49,019	4	2	0	1	0	0	0	1
Wheeling	56,208	21	2	2	0	0	0	0	2
North Carolina:									
Raleigh	30,371	9	2	2	0	0	0	0	1
Wilmington	37,061	14	0	1	0	0	0	1	3
Winston-Salem	69,031	4	2	0	0	2	0	1	4
South Carolina:									
Charleston	73,125	0	2	2	33	0	0	0	4
Columbia	41,225	1	1	0	0	0	0	0	0
Greenville	27,311	1	0	1	0	0	0	0	0
Georgia:									
Atlanta	(1)	2	4	13	17		6	4	
Brunswick	16,809	2	0	0	2	0	0	0	1
Savannah	93,134	1	2	5	5	0	0	0	5
Florida:									
Miami	69,754	0		5	0	0	0	0	1
St. Petersburg	26,847		1			0			1
Tampa	94,743	7	2	6	0	0	10	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	2	2	0	0	1	0	2
Louisville	305,935	9	11	4	2	0	0	0	7
Tennessee:									
Memphis	174,533	14	8	8	0	1	2	0	4
Nashville	136,220	1	4	1	0	0	0	0	5
Alabama:									
Birmingham	205,670	14	5	10	9	0	1	1	7
Mobile	65,955	0	1	1	0	0	0	0	0
Montgomery	46,481	4	2	2	5	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	2	2	0	0		0	0	
Little Rock	74,216	0	2	0	0		1	0	2
Louisiana:									
New Orleans	414,493	2	12	5	4	4	17	0	13
Shreveport	57,857	4	1	4	0	0	0	0	0
Oklahoma:									
Oklahoma City	(1)	0	3	1	0	1	1	0	5
Texas:									
Dallas	194,450	4	12	22	2	3	1	1	6
Galveston	48,375	0	1	0	0	0	0	0	4
Houston	164,954	3	5	19	0	0	0	0	6
San Antonio	198,069	1	3	10	0	2	0	0	8

[1] No estimate made.

City reports for week ended December 18, 1926—Continued

Division, State, and city	Population July 1, 1925 estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN									
Montana:									
Billings	17,971	3	0	0	0	0	25	0	0
Great Falls	29,883	5	1	1	0	0	1	0	1
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	3	1	0	0	0	0	1	0
Idaho:									
Boise	23,042	4	1	0	0	0	3	0	0
Colorado:									
Denver	280,911	17	12	12	--------	1	49	0	21
Pueblo	43,787	3	5	1	0	0	0	0	3
New Mexico:									
Albuquerque	21,000	2	1	1	0	0	3	3	0
Arizona:									
Phoenix	38,669	0	0	0	0	0	0	0	2
Utah:									
Salt Lake City	130,948	18	3	4	0	0	180	1	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	1
PACIFIC									
Washington:									
Seattle	(1)	51	7	9	--------	--------	10	31	--------
Spokane	108,897	19	5	2	--------	--------	82	--------	--------
Tacoma	104,455	14	3	7	0	0	0	0	6
Oregon:									
Portland	282,383	8	10	18	0	0	2	3	9
California:									
Los Angeles	(1)	37	37	60	11	1	18	10	22
Sacramento	72,260	2	2	2	0	1	36	0	3
San Francisco	557,530	26	20	14	3	0	79	23	4

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	3	3	0	0	0	0	0	1	0	9	24
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	15
Manchester	1	7	0	0	0	0	0	0	0	0	25
Vermont:											
Barre	0	0	0	0	0	3	0	0	0	2	4
Massachusetts:											
Boston	44	98	0	0	0	13	2	10	0	14	200
Fall River	3	6	0	0	0	2	0	1	0	2	33
Springfield	8	4	0	0	0	1	0	0	0	2	36
Worcester	12	13	0	0	0	3	0	0	0	18	53
Rhode Island:											
Pawtucket	1	2	0	0	0	2	0	0	0	0	21
Providence	7	6	0	0	0	1	1	0	0	7	59
Connecticut:											
Bridgeport	8	17	0	0	0	5	0	0	0	0	33
Hartford	8	11	0	0	0	1	0	0	0	3	44
New Haven	8	3	0	0	0	1	1	1	0	0	46

[1] No estimate made.

City reports for week ended December 18, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
MIDDLE ATLANTIC											
New York:											
Buffalo	23	24	0	0	0	6	2	0	0	11	121
New York	156	233	0	2	0	[1] 96	15	10	2	41	1,548
Rochester	12	14	0	0	0	1	2	3	0	4	60
Syracuse	12	13	0	0	0	1	0	0	1	8	53
New Jersey:											
Camden	3	5	0	0	0	1	0	0	0	1	37
Newark	17	26	0	0	0	6	1	0	0	32	109
Trenton	3	3	0	0	0	3	0	1	1	2	34
Pennsylvania:											
Philadelphia	68	80	1	0	0	33	4	2	1	26	508
Pittsburgh	33	29	0	0	0	7	1	1	1	6	176
Reading	2	3	0	0	0	1	0	0	0	3	17
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	21	1	0	0	7	1	3	1	3	127
Cleveland	32	43	0	1	0	14	2	0	0	10	184
Columbus	11	10	1	0	0	6	1	0	0	5	93
Toledo	13	12	1	0	0	2	1	0	1	27	75
Indiana:											
Fort Wayne	3	5	1	0	0	2	0	0	0	0	27
Indianapolis	11	22	5	13	0	4	0	0	0	12	104
South Bend	4	4	0	0	0	0	0	0	0	0	5
Terre Haute	3	7	1	1	0	0	0	0	0	0	13
Illinois:											
Chicago	116	94	1	1	0	46	7	0	0	44	696
Peoria	5	1	1	0	0	3	0	0	0	3	27
Springfield	2	2	0	0	0	0	0	0	0	3	17
Michigan:											
Detroit	84	85	3	0	0	23	3	3	0	34	274
Flint	8	21	1	0	0	0	0	0	0	0	40
Grand Rapids	8	17	0	0	0	2	1	0	0	2	32
Wisconsin:											
Kenosha	1	2	1	0	0	0	0	0	0	7	9
Madison	2	5	0	0	0	0	0	0	0	0	7
Milwaukee	25	13	2	0	0	4	0	1	0	54	107
Racine	5	4	0	0	0	1	0	0	0	2	[illegible]
Superior	2	-------	1	-------	-------	-------	0	-------	-------	-------	[illegible]
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	13	0	0	0	0	0	0	0	2	21
Minneapolis	47	83	4	0	0	2	1	0	0	5	101
St. Paul	21	32	10	4	0	5	1	1	0	3	61
Iowa:											
Davenport	1	2	0	0	-------	-------	0	0	-------	0	-------
Sioux City	2	5	1	0	-------	-------	0	0	-------	0	-------
Waterloo	3	1	0	0	-------	-------	0	0	-------	3	-------
Missouri:											
Kansas City	11	6	1	3	0	8	1	0	0	0	116
St. Joseph	2	2	0	0	0	0	0	0	0	2	34
St. Louis	34	34	0	0	0	6	2	4	1	23	220
North Dakota:											
Fargo	2	8	1	0	0	0	0	0	0	0	5
South Dakota:											
Aberdeen	1	1	1	0	-------	-------	0	0	-------	0	-------
Sioux Falls	2	1	0	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Omaha	6	11	5	2	0	2	1	0	0	0	58
Kansas:											
Topeka	2	5	1	14	0	0	0	0	0	9	25
Wichita	3	5	1	0	0	0	0	0	0	6	30

[1] Pulmonary tuberculosis only.

City reports for week ended December 18, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC											
Delaware.											
Wilmington	3	12	0	0	0	2	1	0	0	1	25
Maryland.											
Baltimore	24	32	0	0	0	14	3	1	0	59	222
Cumberland	1	0	0	0	0	1	0	0	0	0	11
Frederick	1	3	0	0	0	0	0	0	0	2	3
District of Columbia:											
Washington	20	19	1	0	0	9	4	0	0	16	120
Virginia:											
Lynchburg	0	2	0	0	0	0	0	0	0	0	15
Norfolk	3	------	0	------	------	------	0	------	------	------	------
Richmond	6	2	0	0	0	2	0	2	0	0	44
Roanoke	1	6	1	0	0	2	0	0	0	0	15
West Virginia											
Charleston	2	4	1	0	1	0	0	0	1	0	23
Wheeling	2	2	0	0	0	1	1	0	0	0	22
North Carolina:											
Raleigh	1	4	0	0	0	0	0	0	0	13	8
Wilmington	1	0	1	0	0	0	0	0	0	2	8
Winston-Salem	2	1	1	0	0	0	0	0	0	6	19
South Carolina:											
Charleston	1	0	0	0	0	2	0	2	0	0	20
Columbia	0	3	0	0	0	0	0	0	0	0	------
Greenville	0	0	0	1	0	0	0	3	0	0	3
Georgia:											
Atlanta	4	12	1	10	0	0	0	1	0	12	------
Brunswick	0	0	0	0	0	0	0	0	0	0	2
Savannah	0	0	0	2	0	7	1	1	0	0	31
Florida:											
Miami	------	0	------	0	0	2	------	3	0	1	34
St. Petersburg	0	------	0	------	------	------	0	------	------	------	7
Tampa	0	1	0	1	0	4	1	0	0	0	29
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	3	0	0	0	1	0	0	0	0	18
Louisville	5	13	0	2	0	4	1	0	1	13	86
Tennessee:											
Memphis	5	8	0	4	0	5	0	0	0	11	66
Nashville	3	14	1	0	0	4	0	2	0	6	45
Alabama:											
Birmingham	4	5	0	2	0	1	1	1	0	0	55
Mobile	0	3	1	4	0	0	0	1	0	0	20
Montgomery	1	2	0	3	0	0	0	0	0	0	9
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	1	0	0	------	------	0	0	------	0	------
Little Rock	2	4	0	0	------	1	1	2	------	7	------
Louisiana:											
New Orleans	6	15	1	0	0	18	2	3	2	0	163
Shreveport	1	5	1	0	0	1	1	0	0	0	23
Oklahoma:											
Oklahoma City	2	0	1	0	0	------	0	1	------	3	26
Texas:											
Dallas	3	24	0	8	0	3	0	0	0	0	50
Galveston	0	0	0	0	0	1	0	0	1	0	19
Houston	2	2	0	2	0	5	0	0	0	0	46
San Antonio	1	4	0	0	0	2	0	0	0	0	40
MOUNTAIN											
Montana:											
Billings	1	3	1	0	0	0	0	0	0	0	5
Great Falls	1	7	1	0	0	0	0	0	0	0	6
Helena	0	0	0	0	0	0	0	0	0	0	------
Missoula	0	11	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	1	5	0	0	0	0	0	0	0	0	4

City reports for week ended December 18, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
MOUNTAIN—contd.											
Colorado:											
Denver	10	94	3	0	0	8	1	0	0	0	90
Pueblo	2	1	0	0	0	0	0	0	0	0	7
New Mexico:											
Albuquerque	1	3	0	0	0	0	0	0	0	0	22
Arizona:											
Phoenix	2	1	0	0	0	5	0	1	0	0	15
Utah:											
Salt Lake City	3	1	2	0	0	2	1	1	0	1	28
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	7	14	3	0			1	2		2	
Spokane	5	35	3	3			0	0		0	
Tacoma	3	6	2	12	0	0	0	1	0	0	29
Oregon:											
Portland	7	5	6	1	0	3	1	0	0	1	68
California:											
Los Angeles	20	55	4	0	0	22	2	4	0	4	261
Sacramento	2	7	2	0	0	1	0	0	0	0	24
San Francisco	10	26	0	0	0	12	1	2	0	12	160

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	1	0	0	1	1	0
Fall River	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	2	4	7	1	0	0	1	1	0
Pennsylvania:									
Philadelphia	0	0	1	0	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	0	0	0	0	1	0
Columbus	0	0	0	0	0	0	0	0	1
Toledo	0	0	0	0	0	0	0	0	1
Illinois:									
Chicago	0	0	1	1	0	0	0	0	0
Wisconsin:									
Milwaukee	2	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
St. Louis	1	0	0	0	0	0	0	0	0
Nebraska:									
Omaha	0	0	0	0	0	0	0	1	1

City reports for week ended December 18, 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	0	0	0	0	1	0
North Carolina:									
Winston-Salem	0	0	0	0	1	1	0	0	0
Georgia:[1]									
Savannah	0	0	0	0	0	0	0	1	1
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	1	0	0	0	0	0	0	0	0
Tennessee:									
Memphis	0	1	0	0	0	0	0	0	0
Nashville	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham	2	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	2	2	0	0	0
Texas:									
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver	2	1	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland	1	0	0	1	0	0	1	0	0
California:									
Los Angeles	1	1	0	0	0	0	0	0	0

[1] Typhus fever: 2 cases at Atlanta.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended December 18, 1926, compared with those for a like period ended December 19, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 95 cities reporting deaths had more than 29,200,000 estimated population in 1925 and more than 29,730,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table following.

Summary of weekly reports from cities, November 14 to December 18, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925[1]

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
101 cities	176	230	154	212	165	221	159	[2] 201	[3] 158	[4] 190
New England	139	139	101	132	120	173	103	163	132	[5] 158
Middle Atlantic	143	159	150	154	137	176	138	160	147	167
East North Central	180	292	155	257	161	267	158	223	154	[6] 217
West North Central	221	213	170	191	272	209	239	193	178	129
South Atlantic	271	278	207	284	207	212	192	230	192	[7] 232
East South Central	121	368	110	218	116	301	121	[2] 275	89	115
West South Central	167	327	172	301	261	318	176	267	[3] 241	258
Mountain	305	146	129	200	231	228	166	216	176	164
Pacific	177	326	157	305	122	270	191	210	177	253

MEASLES CASE RATES

	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
101 cities	222	135	205	133	312	175	427	[2] 190	[3] 515	[4] 192
New England	1,090	47	798	57	1,526	102	1,953	165	2,082	[5] 249
Middle Atlantic	255	28	238	30	338	37	451	23	518	24
East North Central	97	121	118	131	243	115	293	218	479	[6] 211
West North Central	14	197	29	109	18	113	25	129	35	109
South Atlantic	271	54	330	23	516	49	539	54	570	[7] 91
East South Central	47	31	32	16	37	26	21	[2] 83	79	21
West South Central	9	26	4	103	4	142	4	146	[3] 9	82
Mountain	28	1,948	9	2,540	9	2,840	37	3,214	28	2,340
Pacific	30	491	25	340	55	704	52	617	77	607

SCARLET FEVER CASE RATES

	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
101 cities	178	213	197	215	211	242	223	[2] 238	[3] 232	[4] 280
New England	201	331	206	286	216	326	187	340	192	[5] 391
Middle Atlantic	143	129	149	137	166	156	172	177	189	214
East North Central	187	202	210	202	261	239	288	236	286	[6] 242
West North Central	401	407	438	411	405	435	476	431	454	413
South Atlantic	115	145	134	158	119	182	152	175	154	[7] 206
East South Central	126	228	168	239	163	241	110	[2] 149	116	249
West South Central	88	116	132	198	106	211	141	142	[3] 88	237
Mountain	157	637	166	783	240	929	157	801	277	1,111
Pacific	188	337	237	251	215	267	185	232	243	386

SMALLPOX CASE RATES

	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
101 cities	16	5	16	5	13	14	21	[2] 11	[3] 20	[4] 16
New England	0	0	0	0	0	0	0	0	0	[5] 0
Middle Atlantic	0	0	0	0	0	1	0	1	1	1
East North Central	31	3	31	7	13	21	33	7	26	[6] 11
West North Central	16	4	10	30	18	48	18	38	37	46
South Atlantic	19	4	2	4	4	19	8	19	12	[7] 28
East South Central	11	0	11	5	11	0	5	[2] 22	11	78
West South Central	0	4	9	4	13	9	9	9	[3] 23	43
Mountain	18	0	9	0	0	18	102	18	37	0
Pacific	75	49	94	5	105	35	124	43	113	40

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1925 and 1926, respectively.
[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Worcester, Mass., Superior, Wis., and Norfolk, Va., not included.
[5] Worcester, Mass., not included.
[6] Superior, Wis., not included.
[7] Norfolk, Va., not included.

Summary of weekly reports from cities, November 14 to December 18, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925—Continued.

TYPHOID FEVER CASE RATES

	Week ended—									
	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
101 cities	17	16	13	12	19	10	20	[2] 13	[3] 16	[4] 12
New England	31	7	17	7	22	7	22	2	10	[5] 34
Middle Atlantic	20	21	14	13	26	9	25	18	17	8
East North Central	3	5	3	4	8	6	12	3	13	[6] 5
West North Central	14	6	8	8	10	10	12	4	14	10
South Atlantic	29	23	27	19	19	17	23	24	17	[7] 20
East South Central	32	36	21	31	53	42	26	[2] 44	26	21
West South Central	31	13	31	17	40	9	31	13	[3] 28	22
Mountain	18	27	18	18	0	9	18	9	9	9
Pacific	6	30	14	22	14	16	14	16	17	24

INFLUENZA DEATH RATES

	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
95 cities	8	10	9	10	11	14	13	[2] 17	[3] 14	[4] 15
New England	2	2	12	9	10	7	10	9	14	[5] 8
Middle Atlantic	6	10	8	7	10	13	12	12	8	13
East North Central	6	10	5	9	6	9	11	14	17	[6] 12
West North Central	2	6	2	2	6	4	6	15	4	15
South Atlantic	13	8	10	15	17	21	8	34	10	[7] 28
East South Central	42	31	26	42	42	42	47	[2] 44	53	5
West South Central	10	33	34	33	39	43	44	43	[3] 36	43
Mountain	18	9	9	36	18	46	18	36	0	9
Pacific	18	4	4	0	4	11	4	11	18	7

PNEUMONIA DEATH RATES

	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926
95 cities	146	123	126	126	144	122	130	[2] 129	[3] 149	[4] 138
New England	139	104	156	132	180	118	132	135	158	[5] 148
Middle Atlantic	160	135	145	138	161	150	132	139	148	147
East North Central	139	106	95	99	142	87	116	103	132	[6] 119
West North Central	101	120	81	74	54	74	84	118	133	120
South Atlantic	146	143	134	165	159	105	173	154	200	[7] 128
East South Central	221	171	179	104	131	135	184	[2] 171	215	130
West South Central	155	156	150	213	155	161	208	151	[3] 184	184
Mountain	222	109	157	146	157	209	176	109	120	273
Pacific	87	75	98	124	98	153	76	114	98	124

[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Worcester, Mass., Superior, Wis., and Norfolk, Va., not included.
[5] Worcester, Mass., not included.
[6] Superior, Wis., not included.
[7] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total	101	95	29,900,058	30,427,598	29,221,531	29,733,613
New England	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	12	10	2,550,924	2,589,131	2,431,258	2,468,448
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,695
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended December 4, 1926.—The following report for the week ended December 4, 1926, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:							Dutch East Indies						
Bombay	----	1	----	0	2	2	Cheribon	0	0	0	0	0	0
Calcutta	----	0	----	31	15	21	Siam: Bangkok	0	0	1	1	5	3
Rangoon	----	1	----	2	1	0	French Indo-China						
Madras	----	0	----	0	3	1	Turane	0	0	5	1	0	0
Vizagapatam	----	0	----	0	1	0	Haiphong	0	0	----	15	0	0
Tuticorin	----	0	----	1	1	0	Egypt: Alexandria	1	0	0	0	0	0
Ceylon: Colombo	0	0	0	0	0	0	Mauritius: Port Louis	----	3	0	0	0	0
Straits Settlements:													
Singapore	0	0	2	1	0	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia: Aden, Jeddah, Kamaran, Perim.
Iraq: Basrah.
Persia: Mohammerah, Bender Abbas, Bushire.
British India: Karachi, Chittagong, Cochin, Negapatam.
Portuguese Indies: Nova Goa.
Federated Malay States: Port Swettenham.
Straits Settlements: Penang.
Dutch East Indies: Samarang, Batavia, Surabaya, Sabang, Makassar, Banjermasin, Palembang, Belawan-Deli, Padang, Tarakan, Menado, Balikpapan, Samarinda, Pontianak.
French Indo-China: Saigon and Cholon.
Sarawak: Kuching.
British North Borneo: Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor: Dilly.
Philippine Islands: Manila, Iloilo, Jolo, Cebu, Zamboanga.
China: Amoy, Shanghai (International Settlement).
Hong-Kong.
Macao.
Formosa: Keelung.
Japan: Yokohama, Osaka, Nagasaki, Niigata, Tsuruga, Hakodate, Shimonoseki, Moji, Kobe.
Korea: Chemulpo, Fusan.
Manchuria: Mukden, Changchun, Harbin, Antung, Yingkow.
Kwantung: Port Arthur, Dairen.

AUSTRALASIA AND OCEANIA

Australia: Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea: Port Moresby.
New Britain Mandated Territory: Rabaul and Kokopo.
New Zealand: Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia: Noumea.
Fiji: Suva.
Hawaii: Honolulu.
Society Islands: Papeete.

AFRICA

Egypt: Port Said, Suez.
Anglo-Egyptian Sudan: Port Sudan, Suakin.
Eritrea: Massaua.
French Somaliland: Jibuti.
British Somaliland: Berbera.
Italian Somaliland. Mogadiscio.
Kenya: Mombasa.
Zanzibar: Zanzibar.
Tanganyika: Dar-es-Salaam.
Seychelles: Victoria.
Madagascar: Majunga, Tamatave.
Portuguese East Africa: Mozambique, Beira, Lourenzo-Marques.
Union of South Africa: East London, Port Elizabeth, Cape Town.

Reports had not been received in time for distribution from:

Union of South Africa: Durban.
U. S. S. R.: Vladivostok.

Seventeen smallpox cases were reported in Vladivostok (U. S. S. R.) during the week ending November 27th.

One case of plague was erroneously reported at Singapore and one case at Vizagapatam for the week ended November 27, 1926 (Public Health Reports, December 24, 1926, p. 3026). These cases were actually smallpox.

ALGERIA

Plague—Algiers and Oran—November 21 to 28, 1926.—One isolated case of plague occurred at Algiers on November 27. The epidemic in this region is said to be ended.

From November 21 to 28, 21 cases of plague with 18 deaths were reported at Oran, with 2 additional deaths at Tafaraoui, near Oran. The epidemic seemed to be decreasing. All prophylactic measures are said to have been taken in this region.

BRAZIL

Communicable diseases—Bahia—October 31–November 13, 1926.—During the two weeks ended November 13, 1926, communicable diseases were reported in Bahia, Brazil, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Beriberi		1	Measles	17	15
Diphtheria	5		Smallpox	2	3
Grippe	2	2	Tuberculosis	39	39
Leprosy	1	1	Typhoid fever	2	1
Malaria	28	28	Whooping cough	2	1

CANADA

Communicable diseases—Week ended December 11, 1926.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended December 11, 1926, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal meningitis				1				1
Influenza	30							30
Lethargic encephalitis				1				1
Smallpox				33	3	9	14	59
Typhoid fever			4	10		1		15

ECUADOR

Plague—Guayaquil—November 1–30, 1926.—During the month of November, 1926, 12 cases of plague with 2 deaths were reported at Guayaquil, Ecuador.

Plague-infected rats.—During the same period, 24,887 rats were reported taken at Guayaquil and 77 were found infected.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given

Reports Received During Week Ended January 7, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Tsingtao	Nov. 14-20			Present.
French Settlements in India	Aug. 29-Oct. 2	93	64	
India	Oct. 10-16			Cases, 1,397; deaths, 755.
Calcutta	Oct. 31-Nov. 13	45	35	
Indo-China	July, 1926			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925; One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Siam	Oct. 31-Nov. 6			Case, 1.
Do	Apr. 1-Nov. 6			Cases, 7,706; deaths, 5,075.
Bangkok	Oct. 31-Nov. 6	1		
Straits Settlements	July 25-Aug. 21		11	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-28	21	18	
Tafaraoui	do		2	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	

[1] From medical officers of the Public Health Service, American consuls, and other sources. For reports received from June 26 to December 31, 1926, see Public Health Reports for December 31, 1926. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 7, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Ceylon:				
Colombo	Nov. 14-20			One plague rodent.
Ecuador:				
Guayaquil	Nov. 1-30	12	3	Rats taken, 24,887; found infected, 77.
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-30		3	
India	Oct. 10-16			Cases, 1,565; deaths, 957.
Madras Presidency	Oct. 31-Nov. 6	71	35	
Do	Nov. 14-20	83	45	
Indo-China	July 1-31			Cases, 24: deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-13	8	8	Province.
Surabaya	Oct. 24-Nov. 6	4	1	
Nigeria	Aug. 1-31	187	164	
Senegal	July 1-31	178	162	
Syria:				
Beirut	Nov. 11-20	1		

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	160		
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Nov. 13	2	3	
Pernambuco	Oct. 17-23	14	2	
Rio de Janeiro	Nov. 14-27	80	41	
Canada	Dec. 5-11			Cases, 59.
Alberta	do	14		
Calgary	Nov. 28-Dec. 18	10		
Manitoba	Dec. 5-11	3		
Ontario	do	33		
Ottawa	Dec. 12-18	4		
Toronto	Dec. 14-20	11		
Saskatchewan	Dec. 5-11	9		
China:				
Foochow	Nov. 7-13			Present.
Hankow	Nov. 6-30			Do.
Chosen	Aug. 1-31	33	10	
Estonia	Oct. 1-30	2		
France	Sept. 1-30	66		
French Settlements in India	Aug. 29-Sept. 25	40	40	
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Dec. 4	982		
Greece	Nov. 1-30	20		
India	Oct. 10-16			Cases, 509; deaths, 145.
Calcutta	Oct. 31-Nov. 13	4	4	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1926: Cases, 31; deaths, 3.
Italy	Aug. 29-Sept. 11	4		
Jamaica	Dec. 5-11	20		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Java:				
Surabaya	Oct. 24-30	2		
Mexico:				
Ciudad Juarez	Dec. 14-20		1	Including municipalities in Federal District.
Mexico City	Dec. 5-11	3		
San Luis Potosi	Dec. 5-11		1	
Torreon	Nov. 28-Dec. 4		1	
Portugal:				
Lisbon	do	13		
Rumania	Jan. 1-Sept. 30	7	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 7, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Siam	Apr. 1-Nov. 6			Cases, 631; deaths, 257.
Bangkok	Oct. 31-Nov. 6	3	1	
Tunisia	Oct. 1-20	1		
Union of South Africa:				
Transvaal—				
Johannesburg	Nov. 11-20	1		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	12		
Bulgaria	July 1-Sept. 30	221	24	
Chile:				
Valparaiso	Nov. 21-Dec. 4	2		
China:				
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-31	5		
Greece	Nov. 1-30	12	1	
Italy	Aug. 29-Sept. 11	1		
Lithuania	Sept. 1-30	12	2	
Mexico:				
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Palestine:				
Nahalal	Nov. 16-22	1		Nazareth district.
Rumania	Aug. 1-Sept. 30	72	3	
Russia	Aug. 1-31	1,156		
Tunisia	Oct. 1-20	3		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Aug. 1-31	7	2	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 2

JANUARY 14 - - 1927

SPECIAL ARTICLES

A Note on the Influenza Outbreak in Europe
Death Rates of Mothers From Childbirth in 1925
Epidemiological Study of Minor Respiratory Diseases
Extent of Medical and Hospital Service in a Typical Small City

WASHINGTON
GOVERNMENT PRINTING OFFICE
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 42 JANUARY 7, 1927 No. 1

PRINCIPAL CAUSES OF DEATH, 1925

The Department of Commerce announces that 1,219,019 deaths occurred in 1925 within the death-registration area of continental United States, representing a death rate of 11.8 per 1,000 population—the same as the rate for 1924.

The death-registration area in 1925 comprised 40 States, the District of Columbia, and 24 cities in nonregistration States, with a total estimated population on July 1 of 103,108,000, or 89.4 per cent of the estimated population of the United States.

The principal decreases in death rates in 1925 from the rates for 1924 were as follows: Measles, from 9 to 2 per 100,000 population; pneumonia (all forms), from 98 to 94; and tuberculosis (all forms), from 90 to 87.

Increases in rates in 1925 were recorded for influenza, from 20 to 30 per 100,000 population; diseases of the heart, from 178 to 186; nephritis, from 90 to 96; and diarrhea and enteritis, under 2 years, from 28 to 32.

The following table shows for the death-registration area in continental United States in 1924 and 1925 the number of deaths and the death rates per 100,000 population from leading causes:

Cause of death	Deaths in the registration area in continental United States			
	Number		Rate per 100,000 estimated population	
	1925	1924	1925	1924
All causes [1]	1,219,019	1,173,990	1,182.3	1,183.5
Typhoid and paratyphoid fever	8,287	6,677	8.0	6.7
Malaria	2,132	2,441	2.1	2.5
Smallpox	709	874	0.7	0.9
Measles	2,404	8,517	2.3	8.6
Scarlet fever	2,762	3,122	2.7	3.1
Whooping cough	6,948	8,188	6.7	8.3
Diphtheria	8,058	9,316	7.8	9.4
Influenza	30,538	19,374	29.6	19.5
Dysentery	3,257	2,940	3.2	3.0
Erysipelas	2,455	2,458	2.4	2.5
Lethargic encephalitis	1,630	1,441	1.6	1.5
Meningococcus meningitis	1,095	964	1.1	1.0

[1] Exclusive of stillbirths.

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Cause of death	Deaths in the registration area in continental United States			
	Number		Rate per 100,000 estimated population	
	1925	1924	1925	1924
Tuberculosis (all forms)	89,268	89,724	86.6	90.4
Of the respiratory system	78,103	78,096	75.7	78.7
Of the meninges, central nervous system	3,746	4,014	3.6	4.0
Other forms	7,419	7,614	7.3	7.7
Syphilis [2]	16,332	16,248	15.8	16.4
Cancer and other malignant tumors	95,501	91,138	92.6	91.9
Rheumatism	4,093	4,548	4.0	4.6
Pellagra	3,344	2,347	3.2	2.4
Diabetes mellitus	17,385	16,453	16.9	16.6
Meningitis (nonepidemic)	3,415	3,366	3.3	3.4
Cerebral hemorrhage and softening	87,064	91,941	84.4	92.7
Paralysis without specified cause	5,920	5,957	5.7	6.0
Diseases of the heart	191,226	176,671	185.5	178.1
Diseases of the arteries, atheroma, aneurysm, etc	23,090	23,278	22.4	23.5
Bronchitis	6,670	7,207	6.5	7.3
Pneumonia (all forms)	96,432	97,403	93.5	98.2
Respiratory diseases other than bronchitis and pneumonia (all forms)	8,875	8,998	8.6	9.0
Diarrhea and enteritis (total)	40,512	34,482	39.3	34.8
Diarrhea and enteritis (under 2 years)	32,450	27,566	31.5	27.8
Diarrhea and enteritis (2 years and over)	8,062	6,916	7.8	7.0
Appendicitis and typhlitis	15,618	14,788	15.1	14.9
Hernia, intestinal obstruction	11,168	10,480	10.8	10.6
Cirrhosis of the liver	7,549	7,344	7.3	7.4
Nephritis	99,320	88,863	96.3	89.6
Puerperal septicemia	5,697	5,745	5.5	5.3
Puerperal causes other than puerperal septicemia	9,618	9,630	9.4	9.7
Congenital malformations and diseases of early infancy	76,158	77,653	73.9	78.3
Suicide	12,495	12,061	12.1	12.2
Homicide	8,893	8,420	8.6	8.5
Accidental and unspecified external causes (total)	80,774	75,745	78.3	76.4
Burns (conflagration excepted)	6,375	6,805	6.2	7.0
Accidental drowning	6,456	6,490	6.3	6.5
Accidental shooting	2,570	2,571	2.5	2.6
Accidental falls	13,864	12,955	13.4	13.1
Mine accidents	2,643	2,234	2.6	2.3
Machinery accidents	2,339	2,052	2.3	2.1
Railroad accidents	6,778	6,430	6.6	6.5
Collision with automobile	1,266	996	1.2	1.0
Other railroad accidents	5,512	5,434	5.4	5.5
Street-car accidents	1,630	1,623	1.6	1.6
Collision with automobile	493	365	.5	.4
Other street-car accidents	1,132	1,258	1.1	1.2
Automobile accidents (excluding collision with railroad and street cars)	17,571	15,528	17.0	15.7
Injuries by vehicles other than railroad cars, street cars, and automobiles [3]	1,718	1,680	1.7	1.7
Excessive heat (burns excepted)	1,355	409	1.3	.4
Other external causes	17,475	16,878	16.9	17.0
All other defined causes	114,419	109,646	111.0	110.5
Unknown or ill-defined causes	17,905	17,536	17.4	17.7

[2] Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.
[3] Includes airplane, balloon, and motorcycle accidents.

AUTOMOBILE FATALITIES IN 1925

The Department of Commerce announces that in the registration area of the United States there were 17,571 accidental deaths in 1925 charged to automobiles and other motor vehicles (excluding motorcycles), and that the death rate from this cause was 17 per 100,000 population against 15.7 in 1924, 14.9 in 1923, 12.5 in 1922, and 11.5 in 1921.

CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 JANUARY 14, 1927 NO. 2

INFLUENZA IN EUROPE

Under date of January 10, 1927, a cablegram was received from the Health Section of the League of Nations regarding influenza in Europe, giving data as follows:

Official telegraphic information now received regularly by the Health Section of the Secretariat of the League of Nations shows no unusual prevalence of influenza in Sweden, Germany, Czechoslovakia, Italy, Scotland, or Ireland. A mild form of the disease is prevalent in Holland, Belgium, and Norway. An epidemic of the disease, mostly mild in character, is reported in southern Jutland, and Fyen, in Denmark. The epidemic in Switzerland was highest in Basel, Geneva, and Bern. It is now decreasing. The deaths occurred mostly among old persons. The disease is prevalent in central, eastern, and southern France. It reached its maximum in Paris the middle of December. During December 332 deaths from influenza and 1,300 deaths from respiratory diseases were recorded in Paris. In England the general death rate increased during the last week in December, but serious prevalence of influenza was not reported. In Spain the disease is generally benign. The epidemic started at the beginning of December in the northeastern provinces and reached Madrid three weeks ago. The League of Nations has not been notified of any frontier measures.

DEATH RATES OF MOTHERS FROM CHILDBIRTH, 1925

The Department of Commerce announces that the changes in the death rates of mothers from childbirth, or puerperal causes, were very slight in 1925 as compared with 1924.

For the 32 States for which figures are available for 1925 and 1924 the rate for puerperal septicemia was 2.4 per 1,000 live births for both years, and the rate for other puerperal causes was 4 for both years. Of these 32 States, 16 showed higher rates for all puerperal causes in 1925 than in 1924.

For the 26 States and the District of Columbia, which constituted the "Birth Registration Area of 1921," the rate for all puerperal causes decreased from 6.7 in 1921 to 6.4 in 1925 per 1,000 live births, and the rate for puerperal septicemia from 2.7 to 2.4 per 1,000 live births.

Florida had the highest death rate in 1925 for all puerperal causes (12.1 per 1,000 live births), and Connecticut the lowest (4.9).

Separate rates for white and colored are shown for only six States: Florida, Kentucky, Maryland, Mississippi, North Carolina, and Virginia. The highest rates in 1925 for both white and colored were for Florida (10.2 and 16.3 per 1,000 live births, respectively), and the lowest were for Maryland (5.1 and 8.9, respectively).

Death rates of mothers from childbirth, per 1,000 live births, in the birth registration area, 1925

Area	Death rate per 1,000 live births														
	All puerperal causes					Puerperal septicemia					Other puerperal causes				
	1925	1924	1923	1922	1921	1925	1924	1923	1922	1921	1925	1924	1923	1922	1921
The birth registration area	6.5	6.6	6.7	6.6	6.8	2.4	2.4	2.5	2.4	2.7	4.0	4.1	4.1	4.2	4.1
1921 birth registration area [1]	6.4	6.4	6.6	6.5	6.7	2.4	2.4	2.5	2.4	2.7	4.0	4.0	4.1	4.2	4.0
REGISTRATION STATES															
California	6.0	5.9	6.7	7.2	6.8	2.3	2.0	2.6	2.6	3.0	3.7	3.9	4.1	4.6	3.9
Connecticut	4.9	5.7	5.7	5.7	5.3	1.8	2.1	2.1	2.0	2.2	3.1	3.6	3.6	3.7	3.1
Delaware	7.7	7.7	8.4	6.6	6.3	3.9	3.2	4.4	3.0	3.0	3.9	4.5	4.0	3.6	3.4
Florida	12.1	12.1	(2)	(2)	(2)	3.2	3.7	(2)	(2)	(2)	9.0	8.5	(2)	(2)	(2)
White	10.2	9.0	(2)	(2)	(2)	2.2	2.6	(2)	(2)	(2)	8.0	6.4	(2)	(2)	(2)
Colored	16.3	18.7	(2)	(2)	(2)	5.3	5.9	(2)	(2)	(2)	11.0	12.8	(2)	(2)	(2)
Illinois	5.8	6.2	6.4	6.3	(2)	2.4	2.7	2.7	2.4	(2)	3.4	3.5	3.8	3.9	(2)
Indiana	6.0	5.8	6.5	6.6	6.9	2.8	2.7	3.1	3.1	3.4	3.3	3.1	3.3	3.5	3.5
Iowa	5.6	6.0	(2)	(2)	(2)	2.1	2.3	(2)	(2)	(2)	3.5	3.7	(2)	(2)	(2)
Kansas	6.5	6.3	6.8	7.6	6.4	3.0	2.1	3.2	3.3	2.9	3.5	4.2	3.7	4.3	3.6
Kentucky	6.0	6.2	6.0	6.1	6.3	2.6	2.8	2.5	2.8	2.9	3.4	3.4	3.5	3.3	3.3
White	5.4	5.7	5.4	5.4	5.7	2.3	2.5	2.2	2.4	2.6	3.0	3.2	3.3	3.0	3.0
Colored	13.8	13.1	15.4	18.5	14.8	5.9	7.1	7.7	9.4	7.0	7.9	6.0	7.7	9.1	7.7
Maine	7.2	8.2	8.7	7.6	7.4	1.7	2.0	1.8	2.1	1.9	5.5	6.2	6.9	5.5	5.5
Maryland	5.8	6.6	6.0	5.9	6.7	2.6	3.1	2.2	2.0	2.4	3.2	3.4	3.8	3.9	4.3
White	5.1	5.7	5.4	5.3	6.0	2.1	2.5	2.0	1.6	2.0	3.0	3.1	3.4	3.7	3.9
Colored	8.9	10.2	8.3	8.4	9.6	4.7	5.5	2.9	3.6	3.7	4.2	4.6	5.4	4.8	5.9
Massachusetts	6.3	6.5	6.3	6.8	6.5	1.9	2.2	2.0	2.1	2.2	4.4	4.3	4.3	4.6	4.3
Michigan	6.4	6.5	7.0	6.9	6.9	2.6	2.8	3.0	2.5	3.1	3.8	3.7	4.1	4.3	3.8
Minnesota	5.3	5.0	6.0	4.9	5.7	2.0	2.1	2.8	1.8	2.6	3.3	2.9	3.3	3.1	3.1
Mississippi	9.8	9.5	8.8	8.3	9.5	3.2	2.9	3.0	2.7	3.1	6.6	6.6	5.8	5.6	6.4
White	6.7	6.5	6.6	6.5	7.1	1.8	1.8	2.1	1.8	2.2	4.8	4.7	4.4	4.6	4.9
Colored	12.9	12.6	10.9	10.0	12.0	4.5	4.0	3.8	3.6	4.0	8.4	8.5	7.1	6.5	8.0
Montana	8.1	6.6	7.5	7.9	(2)	3.4	2.9	3.8	3.8	(2)	4.7	3.6	3.7	4.1	(2)
Nebraska	5.7	6.3	5.8	5.8	6.0	2.2	2.5	2.3	2.3	2.7	3.5	3.8	3.5	3.5	3.9
New Hampshire	7.1	6.1	7.4	6.5	6.2	2.8	1.3	1.6	0.9	1.7	4.4	4.8	5.8	5.5	4.5
New Jersey	6.4	6.2	5.7	6.4	5.9	2.6	2.6	2.3	2.6	2.4	3.8	3.6	3.4	3.8	3.4
New York	6.0	5.9	5.7	6.0	6.3	2.3	2.2	2.1	2.2	2.5	3.7	3.7	3.6	3.8	3.8
North Carolina	8.7	7.7	8.0	8.0	7.3	1.9	2.0	1.8	2.0	1.9	6.8	5.8	6.2	6.0	5.5
White	6.8	6.6	6.7	7.0	6.1	1.4	1.6	1.4	1.6	1.4	5.4	5.0	5.3	5.5	4.7
Colored	12.8	10.4	10.7	9.9	10.2	2.9	2.8	2.6	2.8	3.0	9.9	7.6	8.1	7.2	7.2
North Dakota	6.2	5.7	(2)	(2)	(2)	2.2	1.6	(2)	(2)	(2)	3.9	4.1	(2)	(2)	(2)
Ohio	6.8	6.4	7.2	6.6	7.2	2.9	2.6	2.9	2.5	3.4	3.8	3.8	4.3	4.2	3.8
Oregon	7.2	6.5	6.9	8.3	7.4	3.1	2.4	2.5	2.7	3.0	4.1	4.1	4.4	5.5	4.5
Pennsylvania	6.4	6.3	6.6	6.2	6.8	2.7	2.5	2.8	2.4	2.9	3.7	3.8	3.8	3.8	3.9
Rhode Island	5.2	6.3	6.3	5.5	7.1	1.5	2.2	2.4	1.5	3.2	3.7	4.1	3.9	4.0	3.9
South Carolina	(3)	10.8	9.7	10.7	9.8	(3)	2.6	2.1	3.1	2.6	(3)	8.2	7.6	7.6	7.2
White	(3)	7.6	7.4	8.5	7.8	(3)	2.0	1.4	1.8	1.7	(3)	5.6	6.0	6.8	6.0
Colored	(3)	14.1	12.2	12.8	11.8	(3)	3.2	2.9	4.5	3.4	(3)	10.9	9.3	8.3	8.4
Utah	5.2	4.5	5.0	5.5	7.3	1.5	1.6	1.7	1.5	2.9	3.6	2.9	3.3	4.0	4.3
Vermont	6.8	8.1	7.0	7.4	7.3	2.0	2.0	1.5	1.5	2.5	4.8	6.1	5.5	6.0	4.8
Virginia	7.0	6.5	7.4	7.2	7.0	2.0	2.3	2.3	2.2	2.3	5.0	4.2	5.1	5.0	4.7
White	5.3	5.0	6.0	5.8	5.7	1.5	1.9	2.0	1.6	1.8	3.7	3.1	4.0	4.3	3.9
Colored	11.0	10.0	10.8	10.2	9.9	3.1	3.1	3.1	3.6	3.5	7.9	6.9	7.7	6.5	6.4
Washington	6.0	7.1	6.7	7.9	7.8	2.4	2.4	3.1	3.0	3.6	3.6	4.7	3.5	4.9	4.2
West Virginia	6.3	(2)	(2)	(2)	(2)	2.6	(2)	(2)	(2)	(2)	3.8	(2)	(2)	(2)	(2)
Wisconsin	5.2	6.0	5.8	5.6	5.8	1.6	2.1	2.3	1.9	2.2	3.6	4.0	3.5	3.7	3.6
Wyoming	8.5	9.8	7.3	7.1	(2)	2.7	3.4	1.2	2.1	(2)	5.8	6.3	6.1	5.0	(2)

[1] Excluding South Carolina, which was dropped in 1925.
[2] Not added to registration area until a later date.
[3] Dropped from the registration area.

EPIDEMIOLOGICAL STUDY OF MINOR RESPIRATORY DISEASES

PROGRESS REPORT II: BASED ON RECORDS FOR FAMILIES OF MEDICAL OFFICERS OF THE ARMY, NAVY, AND PUBLIC HEALTH SERVICE AND OF MEMBERS OF SEVERAL UNIVERSITY FACULTIES[1]

By J. G. TOWNSEND, Surgeon, and EDGAR SYDENSTRICKER, Statistician, United States Public Health Service

In the autumn of 1923 the United States Public Health Service, with effective cooperation from the influenza commission of the Metropolitan Life Insurance Co. undertook to assemble a considerable mass of data which would give a better statistical record than was then available of the frequency, distribution, and characteristics of so-called "common colds" and other minor respiratory affections which may or may not be included within that general designation. Heretofore statistics of the frequency of these ailments have usually been compiled from records of illness reported as a cause of absence from school or from industrial employment, or have been based upon cases applying for dispensary treatment, thus excluding cases of the milder grades. Clinical descriptions likewise have been based upon such cases as came under the observation of physicians, and have, moreover, been largely impressionistic rather than statistical, since it is rarely indeed that a clinician keeps systematic records of the symptoms of such comparatively trivial ailments as "colds." In fact it is not often that a "cold" of moderate severity remains under the observation of a physician throughout its course unless it be in a member of his own household.

It appeared, on considering the matter, that the only practicable method for collecting records which would be truly representative, including the milder as well as the more severe cases, was to enlist the cooperation of a sufficient number of individuals each of whom would undertake for a considerable period of time, to report the occurrence and symptoms of each cold or similar affection occurring in himself or among members of his household. Arrangements for rendering such reports were accordingly made with two fairly large groups, namely:

(1) Some 13,000 college students made up of groups of 100 or more at each one of a number of colleges and universities located in different sections of the United States, each student reporting only for himself (or herself) individually. To this group was added a number of employees of the Treasury Department in Washington.

(2) A smaller group made up of members of the faculties of some of the above colleges, and medical officers of the United States Army, Navy, and Public Health Service, each one reporting for his entire household.

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[1] The first progress report upon this study was published in the Public Health Reports, October 24, 1924, pp. 2669–2680 under the following title: Epidemiological Study of the Minor Respiratory Diseases by the United States Public Health Service (Preliminary and Progress Report) by Surg. J. G. Townsend Reprint No. 966).

Some observations on the incidence and character of the minor respiratory diseases in the college-student group during a period of five and a half months have already been presented in a preliminary progress report. Since then the records have been continued over a period of about 18 months for the student group and more than two years for the family group. As compilations and analyses of these records are completed, it is proposed to present them in a series of reports, one of which has already been published.[2] In the meantime, this paper is presented as a preliminary or progress report upon the records received from the "family group." It refers only to the reports rendered during the year 1924 and, for the purpose of calculating incidence rates, is limited to those families which reported *continuously* throughout the whole of that year. For the study of the symptoms associated with each diagnosis the records of all the families reported for any considerable part of the year are used in order to give a larger mass of data. This study is still further limited in its scope in that no attempt is made at this time to correlate the incidence of illness in this group with items of personal history other than sex and age.

METHOD OF COLLECTION

The head of each family undertaking to cooperate in the study furnished, for each member of his family, an individual "enrollment record." This record gave in considerable detail a number of items of past history and habits of life, but it need not be reproduced here since the only items of information used in this study are those relating to sex and age.

Thereafter, shortly before the first and the fifteenth of each month, the clinical report form which is reproduced below (fig. 1) was mailed to the head of each family, to be filled out and returned in an addressed, postage-free envelope. To facilitate the reporting, the names of the several members of the family were listed upon the form before it was sent out, so that completion of the record by the reporter required little more than marking appropriate spaces on the report form. Reminders were sent to those who failed to report promptly and, on the whole, the records were remarkably well sustained.

The total number of families represented in this study, including those which reported for only a part of the year, is 1,189. The families which reported throughout the entire year numbered 775 with a total population[3] of 2,498 persons. As has been stated previously, calculations of morbidity rates are based upon this smaller

[2] See reference to title of this paper.

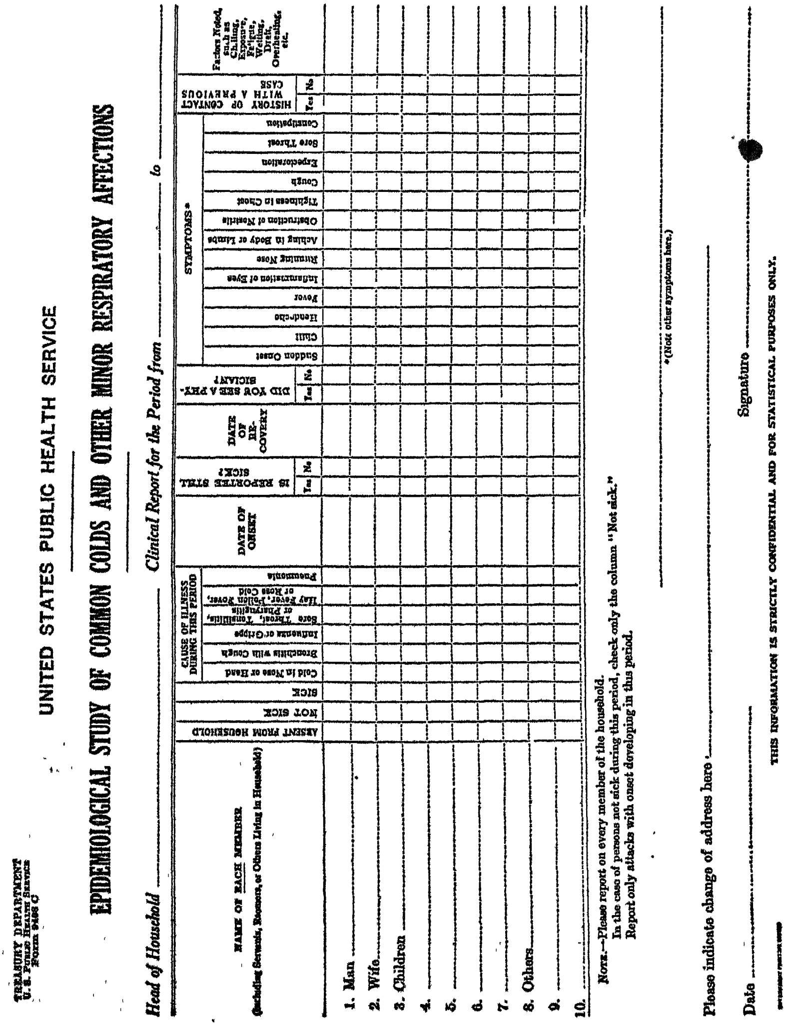
[3] The population within these families necessarily varied somewhat from week to week, due to either permanent or temporary removals and additions of individuals, but the limits of variation were narrow. The figure given is the mean for the year.

group for which the records are complete. This latter group was made up of families distributed, by profession, as follows: [4]

TABLE 1.—*Number of families and individuals reported upon by medical officers and members of medical faculties in the study of respiratory diseases during the full year 1924*

Group	Number of families	Number of individuals by sex		
		Both	Male	Female
All groups	775	2,498	1,203	1,295
Medical officers, U. S. Public Health Service	276	884	435	449
Medical officers, Army	306	965	462	503
Medical officers, Navy	53	185	85	100
Members of faculties	140	464	221	243

[4] The composition of the larger group, including families which reported for only a part of the year, is similar.


TREASURY DEPARTMENT
U. S. PUBLIC HEALTH SERVICE
FORM 9466 C

UNITED STATES PUBLIC HEALTH SERVICE

EPIDEMIOLOGICAL STUDY OF COMMON COLDS AND OTHER MINOR RESPIRATORY AFFECTIONS

Head of Household ____ *Clinical Report for the Period from* ____ *to* ____

NAME OF EACH MEMBER (Including Servants, Roomers, or Others Living in Household)	ABSENT FROM HOUSEHOLD	NOT SICK	SICK	CAUSE OF ILLNESS DURING THIS PERIOD: Cold in Nose or Head	Bronchitis with Cough	Influenza or Grippe	Sore Throat, Tonsillitis, or Pharyngitis	Hay Fever, Pollen Fever, or Rose Cold	Pneumonia	DATE OF ONSET	IS REPORTEE STILL SICK? Yes	No	DATE OF RECOVERY	DID YOU SEE A PHYSICIAN? Yes	No	SYMPTOMS*: Sudden Onset	Chill	Headache	Fever	Inflammation of Eyes	Running Nose	Aching in Body or Limbs	Obstruction of Nostrils	Tightness in Chest	Cough	Expectoration	Sore Throat	Constipation	HISTORY OF CONTACT WITH A PREVIOUS CASE Yes	No	Factors Noted, such as Chilling, Exposure, Fatigue, Wetting, Draft, Overheating, etc.
1. Man																															
2. Wife																															
3. Children																															
4.																															
5.																															
6.																															
7.																															
8. Others																															
9.																															
10.																															

NOTE.—Please report on every member of the household.
In the case of persons not sick during this period, check only the column "Not sick."
Report only attacks with onset developing in this period.

*(Note other symptoms here.)

Please indicate change of address here ____

Date ____ Signature ____

THIS INFORMATION IS STRICTLY CONFIDENTIAL AND FOR STATISTICAL PURPOSES ONLY.

FIG. 1

As will be seen from the above summary, 82 per cent of the reporters are physicians in the medical services of the United States Government. In addition a certain proportion of those belonging to university faculties are physicians, and the remainder, because of their positions, may be considered as skilled observers. Such training on the part of the reporters evidently gives added significance to the records.

With respect to geographic distribution, all sections of the country are represented, though not in proportion to population, there being a relatively large proportion from the Atlantic seaboard and a proportionately greater representation from large cities than from smaller towns and country districts.

The sex and age distributions of the population under observation are shown in Table 2.

TABLE 2.—*Sex and age distribution of individuals in 775 families reporting during the entire year 1924*

Age group	Number of individuals		
	Both sexes	Males	Females
All ages	2,498	1,203	1,295
0-4	311	145	166
5-9	240	120	129
10-14	214	96	118
15-24	159	62	97
25-34	521	196	325
35-44	567	301	266
45-54	325	200	125
55+	152	83	69

If the age distribution is compared with that of the population of the United States, as is done in Table 3, it will be seen that the proportion of persons under 5 years of age and in the age period 25-54 is larger in this group than in the general population, while in the age periods 5-24 and 55 and over it is smaller.

TABLE 3.—*Comparison of the age-distribution of (a) individuals included in the study of respiratory diseases with (b) the population of the United States, 1920*

Age groups	Per cent of population comprised in each age group					
	Males		Females		Both sexes	
	a	*b*	*a*	*b*	*a*	*b*
0-4	+12.1	10.9	+12.8	11.0	+12.4	11.0
5-9	−10.0	10.5	−10.0	10.8	−10.0	10.7
10-14	−8.0	9.8	−9.1	10.0	−8.6	9.9
15-24	−5.2	16.9	−7.5	18.0	−6.4	17.4
25-34	16.3	16.3	+25.1	16.4	+20.9	16.3
35-44	+25.0	13.8	+20.5	13.1	+22.7	13.4
45-54	+16.6	10.5	+9.7	9.6	+13.0	10.0
55+	−6.9	11.4	−5.3	11.1	−6.1	11.3

+ sign indicates higher percentage in "*a*" group as compared with "*b*" group; − sign, the converse.

CLASSIFICATION AND SYMPTOMATIC DESCRIPTION OF REPORTED CASES

Referring to the clinical report-form which is reproduced in Figure 1, it is seen that the reporter is requested to describe each recorded case in two ways, namely: (1) By allocating it to one of the six diagnostic classes which are listed on the record form; and (2) by recording the symptoms associated with the case. It should be possible, therefore, if the records are satisfactory—

(1) To classify the recorded cases according to the diagnosis made by the reporter;

(2) By compilation of the recorded symptoms, to determine the frequency of each symptom in each class of cases; and

(3) Disregarding the diagnostic classification, to make a classification of the cases on the basis of the symptoms recorded.

For the present, however, the classification will be limited to (1) and (2), the purposes in view being:

(*a*) To obtain a description of each diagnostic class in terms of the symptoms associated with it, or in other words to establish for each diagnostic class a statistical definition; and

(*b*) To ascertain, for each diagnostic class, the incidence rate, and the characteristics of its age, sex, and seasonal distributions in that part of the population which was under continuous observation.

It may be well before presenting the results arrived at to note some of the difficulties encountered in classification of the material. The diagnostic classes indicated on the record form (fig. 1) are:

(1) Cold in nose or head.
(2) Bronchitis with cough.
(3) Influenza or grippe.
(4) Sore throat, tonsillitis, or pharyngitis.
(5) Hay fever, pollen fever, or rose cold.
(6) Pneumonia.

This classification was used on the form because the designations are those which actually are commonly used to describe the minor respiratory affections, and it seemed necessary, in providing a report form adapted to use by laymen (i.e., in the student group, which is not considered in this paper) to adhere to common terms. Obviously, however, the classification is unsatisfactory from a statistical viewpoint. In the first place, the classes are not defined on any single consistent principle, and some are less clearly defined than others. Thus, the class "hay fever, pollen fever, or rose cold" is defined on an *etiological* basis, as including those cases attributed, by the reporter, to the effects of irritating pollens; whereas at least three of the other classes (Nos. 1, 2, and 4) have a *definitely specified symptomatic* basis, and the other two, "influenza" and "pneumonia," are likewise symptomatic but refer to symptoms which are not definitely specified. These criticisms, that the classifications are

partly etiological and partly symptomatic and that the various class limits are not equally clearly defined, apply, however, to all the nosological classifications that have as yet been devised, and in the present state of knowledge seem unavoidable.

A further difficulty arises from the fact that the symptomatic classes are not exclusive. For instance, cases may and do occur in

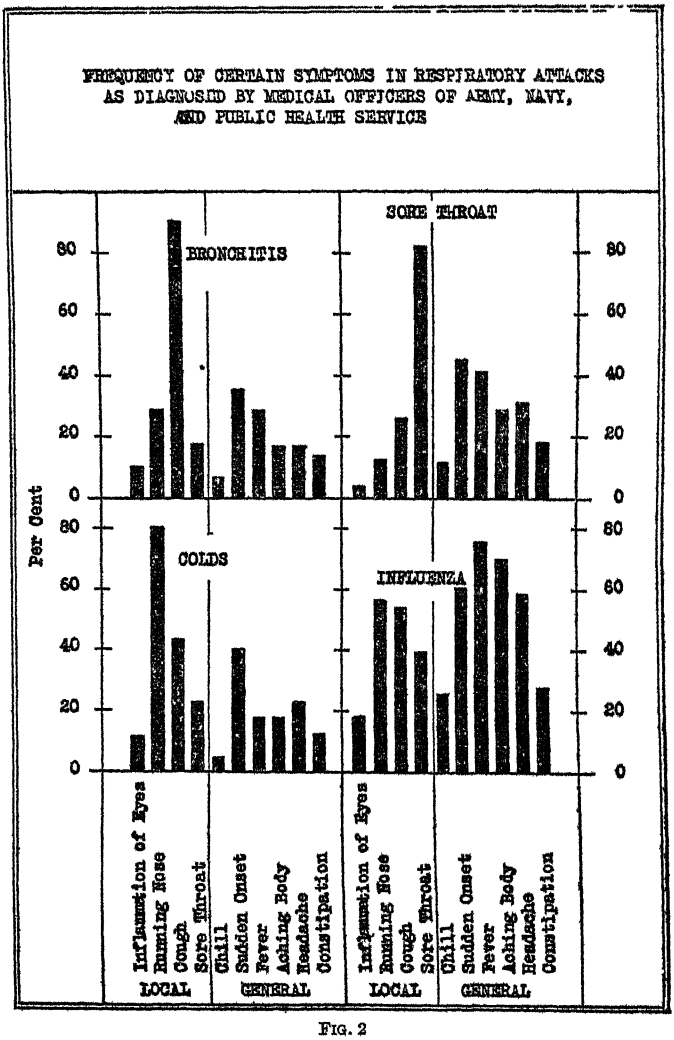


FIG. 2

which "cold in the head," defining class (1), is associated with "bronchitis" or "sore throat," which define classes (2) and (4), respectively. In recording such a case the reporter may either report it under a single diagnosis, leaving it to be shown in the clinical record that the symptoms were of wider range than indicated by the class designation, or he may record it in two or more of the classes

indicated on the report form, thus making a composite diagnosis. A complete classification must, therefore, include not only the six simple classes indicated on the record form but as many additional classes as are formed by the various combinations reported in the records.

Even in such a manifold classification the differences between classes may be more apparent than real, representing to some extent differences in the reporters' judgment or interpretation of the record form rather than objective differences in the cases which are separated in the classification. For example, in recording a case exhibiting symptoms both of rhinitis and bronchitis one reporter might record it as a case of "cold in the head," noting "cough" as a symptom; another as "bronchitis," with "running of the nose" as a symptom; and still another might record the same case under the combined diagnosis "cold and bronchitis," and so on with other combinations.

It is probable that a better choice of class designations on the record form would have diminished these difficulties, but it is not apparent that any simple classification would have eliminated the difficulties altogether, for the ills of the body are not constrained by nature to confine themselves to simple determinative diagnosis, and it is only by arbitrary methods that they can be fitted into *any* simple nosological classification.

A detailed diagnostic classification, showing all the combinations under which cases were actually reported in the group of families which reported throughout the year, is presented in Table 4, which follows:

TABLE 4.—*Distribution of 4,855 respiratory attacks in families of medical officers and faculties reporting throughout the year 1924, according to diagnosis as reported*

Diagnosis or combination of diagnoses as reported [1]	Number of cases	Per cent of total attacks
Cold without other diagnosis	2,463	50.73
Cold with—		
Bronchitis	638	13.14
Sore throat	379	7.81
Bronchitis and sore throat	149	3.07
Any other diagnosis except influenza and pneumonia [2]	42	86
Bronchitis without other diagnosis	334	6.88
Bronchitis with—		
Sore throat	51	1.05
Any other diagnosis except cold, influenza, and pneumonia [2]	4	.08
Sore throat without other diagnosis	339	6.98
Sore throat with—		
Any other diagnosis except cold, bronchitis, influenza, and pneumonia [2]	1	.02
Pneumonia [3]	10	.21
Influenza without other diagnosis	219	4.51
Influenza with—		
Pneumonia	2	.04
Cold	70	1.44
Cold and bronchitis	65	1.34
Cold and sore throat	39	.80
Bronchitis	23	.47
Sore throat	22	.45
Any other diagnosis or combination of diagnoses [4]	5	.10
Hay fever (includes all cases whether concurrent with other diagnosis or not)	64	----------

[1] See Fig. 1 for exact phraseology used on the report form.
[2] Includes croup, hay fever, and sinusitis.
[3] Total cases except those occurring with influenza.
[4] Includes 3 cases with pleurisy and 2 cases with bronchitis and sore throat.

Excepting "hay fever," which is a fairly well-defined group, and "pneumonia," which is not properly classed as one of the "minor" respiratory diseases and is not considered further in this report, the rest of the groups in this classification are rather vaguely defined, the simple diagnoses merging into each other through their various combinations; and it remains to be ascertained, by compilation of their symptomatology, whether or not they really are differentiated from each other in any objective way.[5]

Considering first the five *simple* diagnostic groups, "cold in head," "bronchitis with cough," "sore throat," "influenza or grippe," and "hay fever," Table 5 shows the frequency, in each of these groups, of each one of the 13 symptoms which are indicated on the record form.

TABLE 5.—*Frequencies of certain symptoms in those respiratory attacks for which only one diagnosis was reported*[1]

Symptom	Percentage of cases in which symptom was noted				
	"Cold in head or nose," 3,545 cases	"Bronchitis with cough," 421 cases	"Sore throat, tonsillitis, or pharyngitis," 496 cases	"Influenza or grippe," 297 cases	"Hay fever, pollen fever, or rose cold," 76 cases
Inflammation of eyes	12	3.8	3.2	14	62
Running nose	81	28	12	39	82
Obstruction of nostrils	44	17	8.0	26	46
Cough	31	91	26	47	13
Expectoration	12	41	13	18	2.6
Tightness of chest	4.9	35	5.8	21	9.2
Sore throat	14	10	83	29	3.9
Sudden onset	37	36	45	59	45
Chill or chilliness	3.4	6.7	12	27	1.3
Fever	13	30	42	79	5.3
Aching in body or limbs	14	15	29	67	8.0
Headache	19	16	31	58	12
Constipation	10	13	18	30	3.9

[1] This table includes cases for which only one diagnosis was reported from families reporting for any part or all of 1924.

It will be seen from this table that in each of the diagnostic groups every one of the 13 symptoms which are listed is included; and that except hay fever the groups are differentiated from each other not by the exhibition of different kinds of symptoms, but by different frequency distributions of the same symptoms.

The next step is to compare the symptom distributions under "combined" diagnoses with those under the four simple diagnoses. The detailed tables necessary for these comparisons have been

[5] It should be noted, as affecting the interpretation of the recorded symptom-frequencies, that symptoms which are *implied* in the class designation are not always recorded. Thus, the class designation "bronchitis with cough" predicates cough as a symptom, yet cough is *recorded* as a symptom in only 91 per cent of the cases; and the symptom "sore throat" is recorded in only 83 per cent of the cases classified as sore throat. Likewise the classification of a case as "cold in the head or nose" would seem to imply among the symptoms either "running nose" or "obstruction of nostrils," or both, yet a special tabulation (not reproduced here) shows that in not all of the cases are either of these symptoms recorded. Presumably similar omissions have occurred in the recording of symptoms which are not specifically implied in the class-designation, introducing a systematic error which may or may not be uniformly distributed through the frequencies.

drawn up for study, but it seems unnecessary to reproduce them here because they show only what is implied in the combinations. For instance, cases reported as "cold in head and bronchitis" show a somewhat greater frequency of the symptoms indicative of bronchitis, namely, "cough," "expectoration," and "tightness of chest" than do cases reported simply as "cold in the head"; and similarly with other combinations. Also, in general, in those groups where two or more diagnoses are combined, there are somewhat higher frequencies of constitutional symptoms, such as "chill," "fever," and "headache." Even in these respects, however, the differences in symptom-frequencies between the simple diagnoses and the combinations in which they occur are less than might be expected, due to the fact that cases which one reporter would classify under combined diagnosis are recorded by another under a simple diagnosis.

It seems justifiable, therefore, for the purposes of further discussion, to condense the classification presented in Table 4 into a simpler one, in which the numerous combinations will be absorbed into the six diagnostic classes indicated on the original record form; and some such condensation is, in fact, almost a necessity because of the small numbers comprised in some of the classes of Table 4.

The rules followed in thus summarizing the material, rules which are necessarily arbitrary in some degree, but which are believed to be reasonable, are as follows:

(1) Cases recorded as "pneumonia" are classified as "pneumonia," regardless of any other diagnosis or complication noted.

(2) Attacks diagnosed as "influenza or grippe" are classified as "influenza," in combination with any other diagnosis given, with the exception of pneumonia. The reason for giving precedence to influenza when it occurs in combination with "cold," "bronchitis," "sore throat," etc., is that "influenza" is symptomatically broader than any other of these classes. Also it was presumed that the reporter had in mind some clinical basis for assigning the diagnosis of influenza.

(3) All attacks with the diagnosis of "cold in head or nose," in combination with any other diagnosis given other than those mentioned in (1) and (2) above, are classified as "colds." The reasoning here is that the term "cold" is a more general one than "bronchitis" or "sore throat," being used at times to include more or less extensive catarrhal inflammation of the respiratory tract. Also it was our impression, from limited observation, that where both rhinitis and bronchitis (or tracheitis) were exhibited the former was more likely to precede.

(4) Attacks diagnosed as "bronchitis with cough," unless also diagnosed as "pneumonia" or "influenza or grippe" or "cold in head or nose," were classified as *bronchitis*. The precedence thus

given to "bronchitis" over "sore throat" where these two diagnoses are combined is arbitrary, but seems at least as reasonable as the alternative.

(5) Attacks diagnosed as "sore throat, tonsillitis, or pharyngitis" without other diagnosis were classified as *sore throat*. In combinations they fall in other classes as indicated above.

(6) All attacks diagnosed as "hay fever, pollen fever, or rose cold" were classified as "hay fever" for the purpose of determining the prevalence of this disease in the population studied; but the attacks reported in combination with other diagnoses occurring among persons affected with hay fever were also classified according to the scheme outlined above.

Cases reported under any of the diagnoses listed on the record form, in combination with an *extraneous* diagnosis, that is, one which is beyond the intended scope of this inquiry (as whooping cough, croup, pleurisy, etc.), have been recorded under the diagnosis pertinent to this study. Such cases, however, are used only in the calculations of incidence rates. They are omitted from symptomatic analyses because it is impossible to distinguish between the symptoms pertaining to the minor respiratory affection and those resulting from the concurrent or complicative disorder.

Table 6, which follows, shows the frequency distributions of recorded symptoms in the four groups of cases which are included under the diagnoses of "colds," "bronchitis," "sore throat," and "influenza," respectively. By comparing the symptom distribution under each of these diagnoses with the distribution in the *uncomplicated* cases of corresponding class, as given in Table 5, it will be seen that the clinical picture exhibited by the uncomplicated cases which are shown in the latter table has not been greatly altered in the process of summarizing the combined with the simple diagnoses.

TABLE 6.—*Frequencies of certain symptoms in all respiratory attacks classified according to the procedure described in this report* [1]

Symptom		Percentage of cases in which symptom was noted			
		"Cold in head or nose," 5,210 cases	"Bronchitis with cough," 489 cases	"Sore throat, tonsillitis, or pharyngitis," 497 cases	"Influenza or grippe," 590 cases
Local	Inflammation of eyes	12	11	8.4	18
	Running nose	81	29	13	57
	Obstruction of nostrils	48	16	8.2	39
	Cough	43	91	26	55
	Expectoration	21	43	14	26
	Tightness of chest	11	37	5.8	26
	Sore throat	23	18	83	40
General	Sudden onset	40	36	45	60
	Chill or chilliness	4.5	6.5	12	26
	Fever	18	29	42	76
	Aching in body or limbs	18	17	29	70
	Headache	23	17	31	59
	Constipation	12	14	18	28

[1] This table includes all cases from families reporting for any part or all of 1924.

The four broad diagnostic groups may now be compared with each other to ascertain whether they show distinctive clinical characteristics. With respect to localizing symptoms, the differences between the groups classified as "colds," "bronchitis," and "sore throat," respectively, are found to be what the class designations imply. Thus, in colds the predominant local symptoms are running of the nose and obstruction of the nostrils; in bronchitis the predominant symptom is cough; and in sore throat the symptom sore throat is most frequently recorded. The groups are not exclusive as regards these localizing symptoms, but at least when considered as groups, they are quite distinct.

As regards the symptoms indicative of a general constitutional disturbance—chill, fever, pain in head or body, and constipation, these are least common in "colds," somewhat more common in bronchitis and still more so in cases of sore throat. If the frequency of these general symptoms be taken as an index of the severity of the constitutional disturbance, then the order of severity of these groups is: (1) Sore throat,[6] (2) bronchitis, and (3) colds. It is notable, however, that even in common colds, fever is recorded in about 20 per cent of cases.

The symptomatology of the cases reported as "influenza or grippe" is of interest because the record form itself does not specify any distinctive symptomatic basis for this diagnosis as it does for the diagnoses "cold in the head," "bronchitis with cough" and "sore throat"; but leaves it entirely to the reporter to put into this class the cases conforming to his own conception of a clinical picture sufficiently distinctive to justify the diagnosis of influenza. As the reporters are for the most part physicians, the symptomatology of the cases which they have classified as "influenza or grippe" should indicate fairly well the clinical basis upon which physicians in this country are wont to make this diagnosis in a period when no widespread epidemic prevails.

Referring to Table 6, and comparing the symptom distribution of influenza cases with those of the other groups, and to Figure 2 in which the comparisons are presented graphically, it appears that in the cases classed as "influenza" symptoms of rhinitis, though less common than in "colds," are more common than in "bronchitis" or "sore throat"; cough and expectoration are less frequent than in cases of "bronchitis," but more frequent than in the other two groups; and "sore throat" is likewise more common in influenza than in "bronchitis" or "colds." That is, the cases of "influenza" seem to be characterized by a more widespread inflammation of the respiratory tract than the cases classified in the other groups. The

[6] The group of cases reported as "sore throat" presumably includes some cases of acute follicular tonsillitis, and this may to some extent account for the rather high frequency of chill and fever.

influenza cases are further distinguished by a higher frequency of all the symptoms usually associated with a constitutional reaction to infection, namely, chill, fever, headache, body pains, and constipation, and are more frequently of sudden onset.

The distributions suggest what is probably true that individual cases which might be selected from any of the other groups would show symptomatic records identical with other cases selected from those grouped as influenza. However, although such overlapping of groups occurs, it still appears that *as a group* the cases which are classed as "influenza" differ quite definitely and objectively from those classed as "colds," "bronchitis," or "sore throat."

Granting that the cases classed as influenza show a distribution of symptoms which distinguishes them from the other groups defined in Table 6, it may be of interest to compare them further with a *selected* group of "colds," taking for the purpose those in which the diagnosis of "cold in the head" is combined with that of "bronchitis," or "sore throat," or both; also to compare them with a series of cases of influenza as observed in a *frank epidemic* of that disease. For the latter purpose data are available from the report by Armstrong and Hopkins [7] on their study of the epidemiology of an outbreak in an isolated rural community, Kelly Island, Ohio. This epidemic occurred in January and February, 1920, coincidently with a countrywide epidemic and was quite severe on Kelly Island, affecting 53.5 per cent of the population. The clinical records, presented in a table of symptom frequencies, were collected by personal interviews in a canvass which covered the entire population of the island, and refer to the entire series of cases discovered, including 344 diagnosed as influenza and 25 as "doubtful."

Table 7, in which these comparisons are made, shows that the cases of "influenza" in the present study are still, as a group, differentiated from the more severe types of colds by a lesser frequency of coryza and a higher frequency of chill, fever, pain, and constipation. The comparison with epidemic influenza is not altogether satisfactory, as the symptoms are recorded in terms which are not identical; but, so far as the records are comparable, they indicate that the "influenza" cases in this study were clinically more nearly related to cases of epidemic influenza than to common colds.[8] Whether or not this clinical resemblance is sufficient to actually *identify* the cases of "influenza" recorded in this study with the influenza which prevails in pandemics is a question beyond the scope of the present inquiry,

[7] An Epidemiological Study of the 1920 Epidemic of Influenza in an Isolated Rural Community, by Charles Armstrong, Surgeon, United States Public Health Service, and Ross Hopkins, Assistant Epidemiologist, Ohio State Department of Health, Public Health Reports, July 22, 1922. (36:1671–1702.)

[8] Certain symptoms not included in the record form used in this study are noted as fairly common in the table given by Armstrong and Hopkins, namely, epistaxis in 19 per cent, nausea in 38 per cent, vomiting in 34 per cent, and pain in chest in 32 per cent of their cases.

and to which these records afford no certain answer. Nor can it be assumed that the diagnosis of "influenza or grippe," as made in this series, necessarily implies the belief on the part of the reporter that the disease is etiologically identical with pandemic influenza, for the term influenza is not always used in this sense even by physicians.

TABLE 7.—*Comparison of the frequencies of 13 symptoms in cases of colds (for which a diagnosis of bronchitis or sore throat was also given) with those in cases diagnosed as influenza or grippe*

Symptom	Per cent of cases in which specified symptoms were recorded		
	1,665 cases of "cold" with complications [1]	599 cases of influenza (1924)	369 cases of epidemic influenza (1920)
Local:			
Inflammation of eyes	13	18	----
Running of nose	82	57	[2] 60
Obstruction of nostrils	57	39	
Cough	69	55	76
Expectoration	38	26	49
Tightness of chest	23	26	[3] 32
Sore throat	42	40	36
General:			
Sudden onset	48	60	----
Chill or chilliness	7	26	[4] 58
Fever	29	76	----
Pains in body or limbs	26	70	[5] 49
Headache	30	59	68
Constipation	15	28	([6])

[1] Cases reported as "cold" with bronchitis or sore throat or both.
[2] Recorded as "coryza."
[3] Recorded as "pain in chest."
[4] Recorded as "chilliness."
[5] Recorded as "pain in limbs," same frequency (49%) recorded for "backache."
[6] Nausea recorded in 38 per cent and vomiting in 34 per cent of cases.

The cases reported as "influenza" are, therefore, to be considered not as an etiological group, but merely as a clinical group, concerning the etiology of which nothing is predicated. As a clinical group these cases appear to be sufficiently distinct to warrant their separation from the other groups made in this classification, and to bear sufficient resemblance to cases of pandemic influenza to warrant their designation as influenza if this diagnosis be considered as implying clinical similarity rather than etiological identity.

INCIDENCE AND DISTRIBUTION OF CASES

It remains to be ascertained whether the clinical groups marked off in the classification which has been adopted are characterized by distinctive epidemiological features. For this part of the study it seems preferable to use only the data pertaining to the 775 families (2,498 persons) for which records are available for the whole year.[9]

[9] For a fraction of this population records are missing for the first half of January; but rather than discard this group it has seemed preferable and allowable to include it, assuming, for this period, a number and distribution of cases proportionate to those observed in the remainder of the population during the same time interval.

Table 8 shows, for this population, the number of attacks of respiratory diseases reported during the year, with corresponding incidence rates per 1,000 persons. Since the sex and age distribution of this population is peculiar, the observed attack rates have been adjusted to the sex and age distribution of the population of the United States in 1920, by applying the sex and age specific rates shown in Table 11.

TABLE 8.—*Incidence of respiratory diseases during the year 1924 in families reporting throughout the year (775 families; 2,498 persons)*

Diagnosis	Number of cases	Rate per 1,000	
		Actual	Adjusted[1]
All respiratory diseases exclusive of hay fever	5,019	2,009	1,927
Colds	3,794	1,519	1,464
Bronchitis	403	161	161
Sore throat	352	141	132
Influenza	458	183	164
Influenza-pneumonia	2	0.8	
Pneumonia	10	4.0	
Hay fever	64	25.6	22.5

[1] To the age and sex distribution of the population of the United States, 1920.

It is believed that the records of incidence shown in this table are unusually accurate, being based upon reports rendered at frequent intervals, chiefly by physicians, and referring to individuals with whom they were in daily and intimate contact. The population under observation is, moreover, a selected group, consisting almost exclusively of white persons, mostly residing in cities, and living presumably under exceptionally good hygienic conditions. It can not be assumed, then, that the incidence rates observed in this group, even when adjusted for sex and age distribution, accurately represent the incidence in the general population of the country; but they are probably more representative than any other statistics which have been published up to this time. Judging from official morbidity and mortality records the year 1924 was free from any distinct and general epidemic of influenza, and seems to have been a fairly normal year as regards respiratory diseases.

Incidence by sex.—The incidence rates according to sex for all ages are shown in the following table:

TABLE 9.—*Incidence of respiratory diseases in males and females, respectively, all ages, in families of medical officers and faculty members during 1924*

Diagnosis	Rate per 1,000		Ratio of rate for males to rate for females
	Males	Females	
Total (exclusive of hay fever)	2,076	1,947	1.07
Colds	1,564	1,476	1.07
Bronchitis	175	148	1.18
Sore throat	140	142	.99
Influenza	194	174	1.11
Hay fever	22	29	.76

The rates for males is slightly higher than that for females in all the groups except "sore throat" and "hay fever," the lower frequency of attacks among females being particularly evident for "influenza" and "bronchitis." The rate for sore throat is nearly identical for the two sexes, and the incidence of hay fever is higher

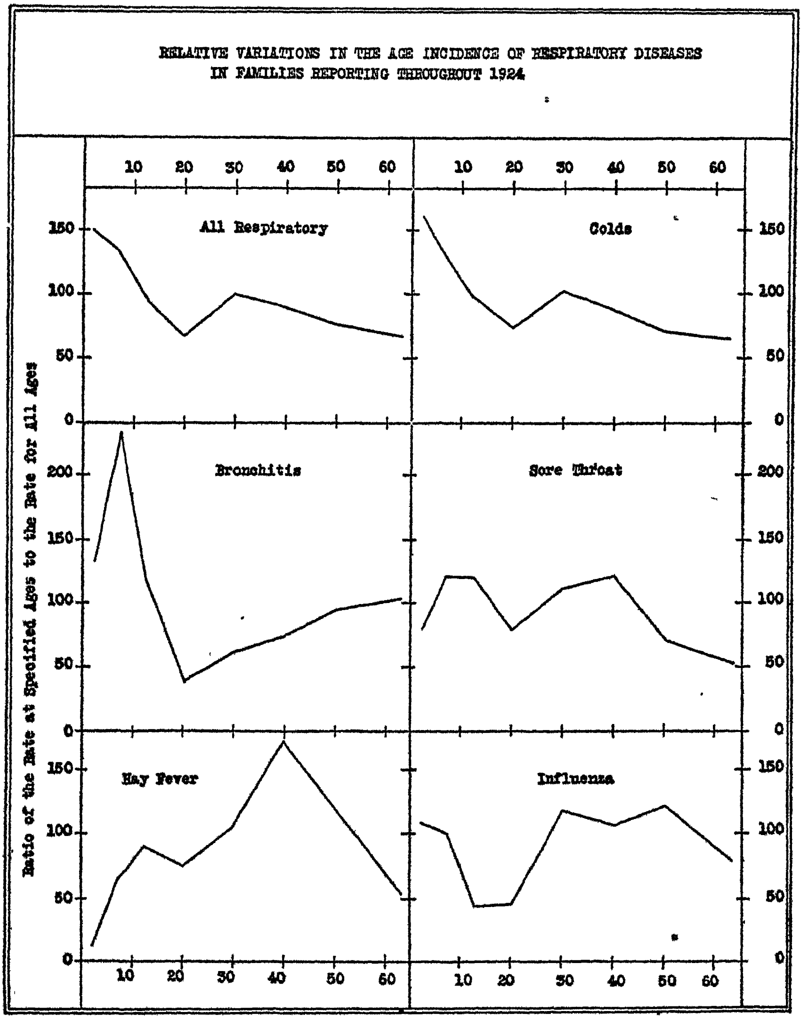


FIG. 3

in females. This generally higher attack rate in males is somewhat different from the results of various morbidity studies made by the Public Health Service and others which show that cases of respiratory diseases which cause disability are usually somewhat more frequent among females than among males. The records in this study have

been made principally by the men in the families concerned, whereas in previous morbidity surveys the women have usually furnished the data. This suggests that the differences in sex ratio may be due to a natural tendency on the part of the reporters to remember their own ills more vividly than those of others. However, the higher male rates in the families under consideration is not adequately explained on this basis, since it is found (Table 10) that it is not confined to the adults.

Incidence by age.—Table 10 shows the number of cases and Table 11 the incidence per 1,000 persons in each age group in both sexes and in males and females. The variations of incidence in relation to age are also shown in Figure 3, in which for each clinical group the incidence rate (both sexes) at each age is expressed as a ratio to the incidence at all ages.

TABLE 10.—*Number of respiratory attacks among persons of different sexes and ages: By diagnosis*

Age groups	Diagnosis								
	Total respiratory (exclusive of hay fever)[1]			Influenza			Colds		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	5,019	2,498	2,521	458	233	225	3,794	1,882	1,912
0-4	929	447	482	64	31	33	756	362	394
5-9	663	333	330	45	24	21	480	234	246
10-14	410	175	235	17	6	11	316	129	187
15-24	219	75	144	13	5	8	177	57	120
25-34	1,050	450	600	113	45	68	805	361	444
35-44	1,036	570	466	111	60	51	760	418	342
45-54	505	333	172	73	47	26	351	238	113
55+	207	115	92	22	15	7	149	83	66

Age groups	Diagnosis								
	Bronchitis			Sore throat			Hay fever[2]		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	403	211	192	352	168	184	64	27	37
0-4	67	30	37	35	21	14	1	1	----------
5-9	93	54	39	42	21	21	4	1	3
10-14	40	23	17	36	17	19	5	4	1
15-24	10	7	3	18	5	13	3	1	2
25-34	51	18	33	81	26	55	14	4	10
35-44	68	37	31	97	55	42	25	9	16
45-54	49	31	18	32	17	15	10	5	5
55+	25	11	14	11	6	5	2	2	----------

[1] Includes 12 cases of influenza-pneumonia.
[2] Includes all cases of hay fever, whether concurrent with other respiratory attacks or not.

TABLE 11.—*Incidence per 1,000 of respiratory attacks among persons of different sexes and ages: By diagnosis*

Age groups	Diagnosis								
	Total respiratory (excluding hay fever)			Influenza			Colds		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	2,009.2	2,076.5	1,946.7	183.3	193.7	173.7	1,518.8	1,564.4	1,476.4
0-4	2,987.1	3,082.7	2,903.6	205.8	213.8	198.8	2,430.9	2,496.6	2,373.5
5-9	2,662.6	2,775.0	2,558.1	180.7	200.0	162.8	1,927.7	1,950.0	1,907.0
10-14	1,915.9	1,822.9	1,991.5	79.4	62.5	93.2	1,476.6	1,343.8	1,584.7
15-24	1,377.3	1,209.7	1,484.5	81.8	80.6	82.5	1,113.2	919.4	1,237.1
25-34	2,015.4	2,295.9	1,846.2	216.9	229.6	209.2	1,545.1	1,841.8	1,366.2
35-44	1,827.2	1,893.9	1,751.7	195.8	199.3	191.7	1,340.4	1,388.7	1,285.7
45-54	1,553.8	1,665.0	1,376.0	224.6	235.0	280.0	1,080.0	1,190.0	904.0
55+	1,361.8	1,385.5	1,333.3	144.7	180.7	101.4	980.3	1,000.0	956.5

Age groups	Diagnosis								
	Bronchitis			Sore throat			Hay fever[1]		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	161.3	175.4	148.3	140.9	139.7	142.1	25.6	22.4	28.6
0-4	215.4	206.9	222.9	112.5	144.8	84.3	3.2	6.9	....
5-9	373.5	450.0	302.3	168.7	175.0	162.8	16.1	8.3	23.3
10-14	186.9	239.6	144.1	168.2	177.1	161.0	23.3	41.7	8.5
15-24	62.9	112.9	30.9	113.2	80.6	134.0	18.9	16.1	20.6
25-34	97.9	91.8	101.5	155.5	132.7	169.2	26.9	20.4	30.8
35-44	119.9	122.9	116.5	171.1	182.7	157.9	44.1	29.9	60.2
45-54	150.8	155.0	144.0	98.5	85.0	120.0	30.8	25.0	40.0
55+	164.5	132.5	202.9	72.4	72.3	72.5	13.2	24.1	....

[1] Includes all cases of hay fever, whether concurrent with other respiratory attacks or not.

Considering all the diseases (except hay fever) and both sexes, the incidence rate is highest in the youngest age group, 0–4; declines to a relatively low level in the age group 15–24; becomes notably higher in the age group 25–34 and then declines regularly until a minimum is reached in the age group "55 years and over." Comparing the two sexes, the rates for males are consistently higher in every age group except 10–14 and 15–24, in which the female rates are in excess. In the oldest age group, 55 and over, the rates in males and females are not significantly different.

Considering each of the five clinical groups separately, the striking fact is that each group shows a distinctive age distribution, quite different from that of any other group, thus confirming the conclusion indicated by clinical comparisons, namely, that the separation of these groups is not altogether artificial, but rests on a real factual basis.

The age distribution of "colds" is similar to and largely determines that of the combined group including all diagnoses together. The fact that colds are more frequent in young children than in adults is

in accordance with common experience; but it is somewhat surprising to find that the incidence diminishes with advancing age, since it is well known that the death rate from respiratory diseases increases rapidly with age beyond middle life.

The incidence of bronchitis in relation to age, as shown here, is generally similar to the curve of mortality from respiratory diseases in relation to age, except that the peak of morbidity here falls in the age group 5–9 rather than in the youngest age group, and that the relative increase in old age is less marked than in mortality statistics.

The age distribution of "sore throat", as shown here is quite peculiar, showing two distinct peaks, one in childhood and one in middle life. Data collected by the Public Health Service in the

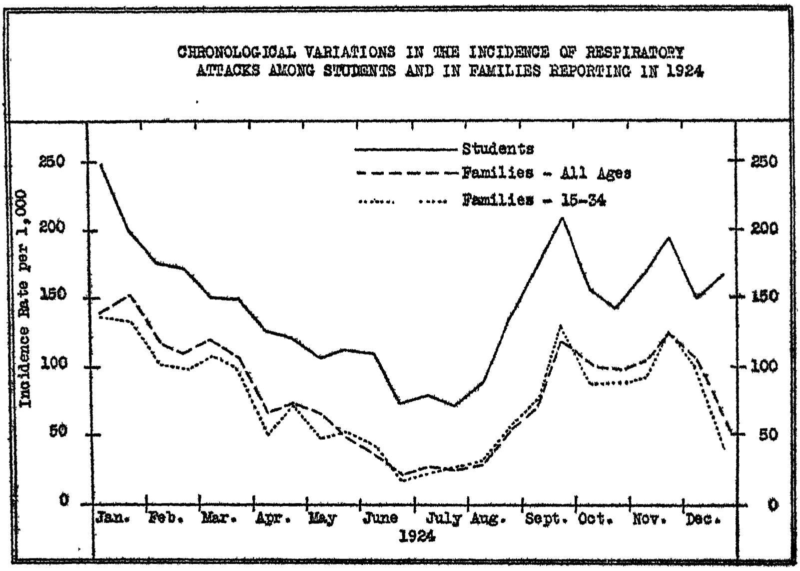


FIG 4.

course of other studies of morbidity in a general population show a much higher relative incidence in the younger ages. It is possible that in this group of families the curve is distorted by the fact that an unusually large proportion of the children have had their tonsils removed at an early age.[10] It is also possible that separation of tonsillitis from pharyngitis (which can not be effected in these records) might exhibit two curves of simpler character.

Regarding the age distribution of the cases reported as influenza, it is quite distinct from that of the other groups, but it is at the same time equally distinct from that observed in the epidemics of 1918 and 1920. Therefore it does not contribute toward the identification of these cases with pandemic influenza.

[10] Tonsillectomy is reported in as high as 60 per cent of the children of certain age groups in these families.

CHRONOLOGICAL DISTRIBUTION

Table 12 shows the rates of incidence of respiratory diseases of all classes in these families (*a*) in persons of all ages, and (*b*) in those aged 15–34 years, in each half-monthly period during 1924. These rates are shown graphically in Figure 4, which also shows the incidence of the same diseases during the same period in some 12,000 students, reporting from a number of different universities and colleges.

TABLE 12.—*Semimonthly incidence of respiratory attacks during 1924 in families reporting for the whole year: For all ages and for persons aged 15–34 years*

Semimonthly period	Rate per 1,000		Number of cases	
	All ages	Ages 15–34	All ages	Ages 15–34
Jan. 1–15	142.1	136.8	355	93
Jan. 16–31	153.3	135.3	383	92
Feb. 1–15	119.7	105.9	299	72
Feb. 16–28	111.7	101.5	279	69
Mar. 1–15	120.1	110.3	300	75
Mar. 16–31	108.9	100.0	272	68
Apr. 1–15	66.1	52.9	165	36
Apr. 16–30	74.1	73.5	185	50
May 1–15	66 9	50.0	167	34
May 16–31	48.8	54.4	122	37
June 1–15	37.6	44.1	94	30
June 16–30	21.2	17.6	53	12
July 1–15	28.0	23.5	70	16
July 16–31	26.4	26.5	66	18
Aug. 1–15	30.8	34.4	77	22
Aug. 16–31	55.2	55.9	138	38
Sept. 1–15	69.7	73.5	174	50
Sept. 16–30	120.1	132.4	300	90
Oct. 1–15	104.1	89.7	260	61
Oct. 16–31	100.1	89.7	250	61
Nov. 1–15	104.5	91.2	261	62
Nov. 16–30	126.1	127.9	315	87
Dec. 1–15	109.3	101.5	273	69
Dec. 16–31	64.5	39.7	161	27

In the family groups, of all ages, the highest incidence (153.3 per 1,000) is recorded in the latter half of January. From that time until the latter half of June there is a fairly regular decline in the rates; then, beginning in July or the first half of August, an increase to a sharp peak (120 per 1,000) during the latter half of September. This is followed by another decline during October and the first half of November, with another sharp rise to a peak (126) in the latter half of November. From this time to the end of the year the incidence rate declined to 65 again.

In the age-group 15–34 of persons in these families the chronological distribution is substantially the same except that the first peak was reached in the first instead of the latter half of January—hardly a significant difference in view of the small numbers.

The reports from students (an entirely independent group of records) show almost identically the same chronological distribution; but in the students the absolute incidence rates throughout the year

are much higher than in the family group as a whole or in the age group 15–34 of this personnel. The similarity in the chronological variations of respiratory attacks in the family and student groups

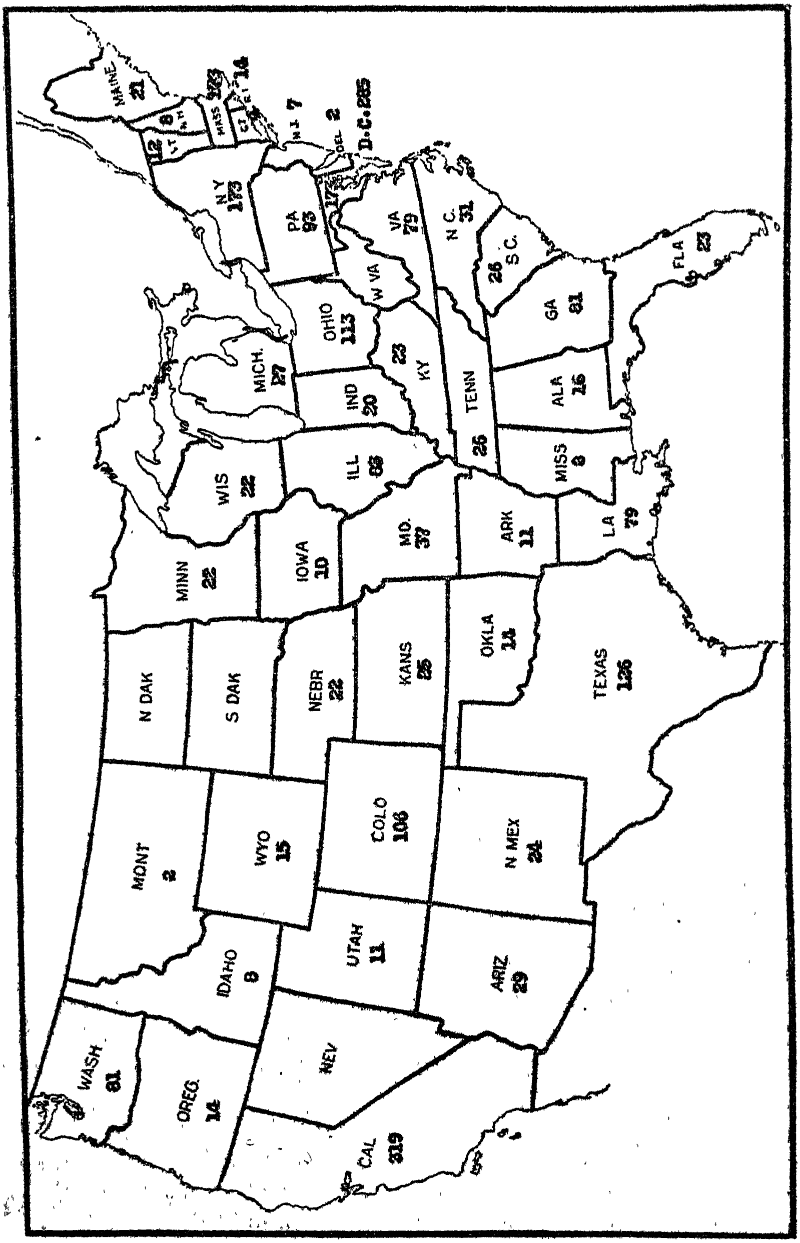


Fig. 5

is all the more striking when it is remembered that both represented scattered sections of the country. The wide geographical distribution of the families is shown in Figure 5 and the student groups were in

Boston, Baltimore, Washington, Rock Hill, S. C., New Orleans, Chicago, Columbus, and San Francisco. Moreover, as was shown in the first report on this study, the chronological variation of attacks among these student groups was remarkably synchronous.

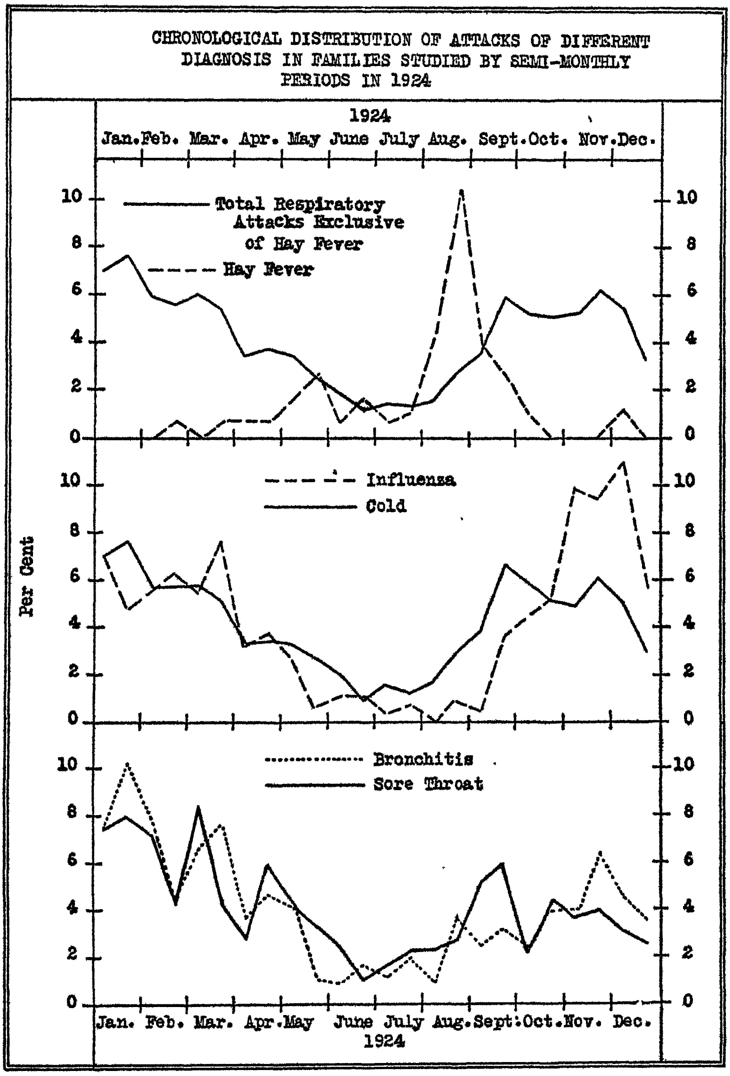


FIG. 6

A higher prevalence in winter and spring than in summer has long been accepted as characteristic of this group of diseases. The sharp increase of incidence rates in the autumn and the subsequent decline in early winter which are shown here have not been recognized as general characteristics of this group of diseases; and it is obvious

that a longer period of observation is required to ascertain whether the seasonal distribution exhibited in 1924 was usual or exceptional. In fact, the collection of records of respiratory attacks in the office of statistical investigations, United States Public Health Service, shows that while the major seasonal variation occurs in other years as well as among other groups of persons observed, minor variations such as the decline in October–November, 1924, are not characteristic of other years.

Table No. 13 and Figure 6 show the chronological distributions, during 1924, of the cases diagnosed respectively as "colds," "bronchitis," "sore throat," and "influenza. In order to reduce the data to a common scale for graphic presentation, these distributions are expressed in terms of the percentage which the cases in each half-monthly period are of the cases during the whole year in each group.

TABLE 13.—*Chronological distribution of attacks in 1924 of different diagnoses in families reporting for the whole year*

Semimonthly period	Per cent of attacks of specified diagnoses in each semimonthly period					
	All diagnoses [1]	Colds	Bronchitis	Sore throat	Influenza	Hay fever [2]
Entire year	100.00	100.00	100.00	100.00	100.00	100.00
Jan. 1–15	7.07	7.04	7.44	7.39	6.99	
Jan. 16–31	7.63	7.64	10.17	7.95	4.80	----------
Feb. 1–15	5.96	5.72	7.94	7.10	5.46	----------
Feb. 16–29	5.56	5.69	4.71	4.26	6.33	----------
Mar. 1–15	5.98	5.77	6.45	8.52	5.46	1.56
Mar. 16–31	5.42	5.01	7.69	4.26	7.64	----------
Apr. 1–15	3.29	3.27	3.72	2.84	3.06	1.56
Apr. 16–30	3.69	3.37	4.71	5.97	3.71	1.56
May 1–15	3.33	3.24	4.22	4.26	2.02	1.56
May 16–31	2.43	2.69	1.24	3.41	.66	4.69
June 1–15	1.87	2.00	.99	2.56	1.09	7.81
June 16–30	1.06	.98	1.74	1.14	1.09	1.56
July 1–15	1.39	1.50	1.24	1.70	.44	4.69
July 16–31	1.32	1.24	1.99	2.27	.66	1.56
Aug. 1–15	1.53	1.71	.99	2.27	----------	3.13
Aug. 16–31	2.75	2.87	3.72	2.84	.87	12.50
Sept. 1–15	3.47	3.80	2.48	5.11	.44	31.25
Sept. 16–30	5.98	6.59	3.23	5.97	3.49	12.50
Oct. 1–15	5.18	5.85	2.48	2.27	4.37	7.81
Oct. 16–31	4.98	5.14	3.07	4.55	5.02	3.13
Nov. 1–15	5.20	4.93	3.97	3.69	9.83	----------
Nov. 16–30	6.28	6.11	6.45	3.98	9.39	----------
Dec. 1–15	5.44	4.96	4.71	3.12	10.92	----------
Dec. 16–31	3.21	2.87	3.72	2.56	5.68	3.13

[1] Except hay fever

[2] Includes all cases of hay fever, whether concurrent with other respiratory attacks or not

The time distributions in all of the groups (excepting hay fever) are similar in a general way, at least to the extent that in each group there is a period of high prevalence in the early winter, a decline to midsummer, another period of high prevalence in autumn, and some decline again in December. Notwithstanding this general similarity, the distributions are more or less distinctive. Thus, the cases of "influenza" during the latter part of the year show a distribution which is distinctly different from that of the "colds"; and even

though the number of cases of "influenza" is not great, the difference is sufficient to be significant. Bronchitis and sore throat show distributions which are distinctly more irregular than those of "colds" or "influenza," and it would appear that this greater irregularity is not altogether explained by the smaller numbers in these groups. Of these two groups bronchitis is more nearly related in its chronology to influenza, and sore throat to "colds." In fact, throughout most of the year, the parallelism between bronchitis and influenza is rather striking.

The seasonal distribution of cases classified as "hay fever, pollen fever, rose cold" is in sharp contrast to that of the other respiratory diseases, the concentration of cases in the "hay fever season" being quite apparent.

ACKNOWLEDGMENTS

This study was made possible by the long continued and interested cooperation of several hundred medical officers of the Army, Navy, and Public Health Service and of a number of members of the faculties of several universities, and by financial assistance from the influenza commission of the Metropolitan Life Insurance Co. Special acknowledgments are gratefully made by the authors of this report to Surg. W. H. Frost for frequent advice during the course of the study and for counsel and assistance in the preparation of this report. The statistical work was done under the immediate supervision of Miss Lily Vanzee of the United States Public Health Service.

THE EXTENT OF MEDICAL AND HOSPITAL SERVICE IN A TYPICAL SMALL CITY[1]

Hagerstown Morbidity Studies No. III

By EDGAR SYDENSTRICKER, Statistician, United States Public Health Service

In discussions of the amount and kinds of medical service which ought, according to present standards, to be available to persons in ill health as well as to those in good health, the observation is not irrelevant that a good deal more must be known about two rather pertinent points:

1. How much and what sort of *demand* is there for medical service as measured by the prevalence of ill health, as evidenced by the frequency of illness due to various diseases in the general population?

2. How much and what kinds of services are actually *supplied* to the general population under such conditions as are typical?

[1] From the Office of Statistical Investigations, United States Public Health Service. Other Hagerstown Morbidity Studies published are—

I. A Study of Illness in a General Population Group: Method of Study and General Results. Pub. Health Rep., Sept. 24, 1926.

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub Health Rep., Oct. 8, 1926.

These points can be refined, of course, and there are other points just as important as these and other problems just as difficult. Ill health is not, of course, completely revealed by sickness alone, and medical service properly is concerned with the health of the individual long before disease results in sickness. In this discussion, however, we are limited by the data to that ill health which is manifested in actual sickness as the term is ordinarily understood. The questions of what constitutes "adequate" medical service, and of its distribution to meet changing conditions; of supplying proper medical, nursing, and hospital care to groups and classes of persons who are known to lack even the facilities ordinarily possessed by most of the population in any community; of the economic factors involved; of efficiency in organization to meet the needs of the situation; of professional and social standards, and the like, are fundamental to a more satisfactory solution of what we are accustomed to speak of as "the problem of medical service." Much has been written and said about the proper ratio of hospital beds to population, some of which is based upon considerable practical experience and, in some instances, upon carefully made observations. Within broad limits, some general estimates have indicated a tendency toward agreement among those who are giving the matter especial attention. Similarly, there are indications of a consensus of opinion on minimal ratios of physicians and nurses to population. But a *factual* basis for these opinions and estimates is still largely lacking. Many of the questions involved should be and can be answered by collecting the necessary information and subjecting the results to proper statistical analysis.

In the hope of making a small contribution to a few items of this desirable knowledge, it is purposed to present in summarized form the results of some observations on the general kind of medical service actually received in cases of illness occurring during a 28 months' period in a general population group. In a report already published, the incidence and prevalence of illness, classified according to disease, in this population, were shown in some detail and the scope, method, and results of the study were described and discussed. These aspects of the study will not be repeated here except to state that the group included about 8,000 white persons of both sexes and all ages, nearly all of whom were native born of native parents, and that 95 per cent of the illnesses recorded lasted three days or longer. The group composed about one-fourth of the population of Hagerstown, Md., a rather typical city of the kind which is surrounded by purely rural country and contains no predominant or large industry. In another report it was pointed out that there were 45 medically trained physicians, 37 of whom were engaged in general practice, which gave a ratio of one physician to 666 inhabitants or

one physician engaged in general practice to 811 inhabitants. Since some of these physicians had rural practice in addition to urban, the ratios are somewhat larger than the above figures. On the other hand, it was found that 30 of the 37 physicians engaged in general practice were practicing in the 1,800 families regularly observed for the incidence of illness. The supply of physicians, however, for Hagerstown was somewhat below the average for cities and towns having 5,000 or more inhabitants. The observations were made during a period which was probably favorable to a demand for medical service, since a health demonstration was in progress at the time, one of the objects of which was to encourage the demand for medical service.

The records of medical service of different kinds actually received are not as complete nor as detailed as we would wish for a detailed contribution on the subject. In fact, they were not so intended when the particular items concerned were placed upon the schedule form as it was devised in 1921, and this brief contribution is made frankly as a by-product of a study designed more specifically for other purposes. The information called for on the form and in the instructions given to the field assistants was as follows:

1. Whether or not a medically trained person was in attendance upon the case of illness recorded. (If so, the name of the physician was ascertained in all instances primarily for the purpose of referring the case to him for confirmation as to diagnosis.)

2. Whether or not the case was hospitalized. By this was meant hospital care of the patient, as distinguished from occupancy of the operating room and immediate return home or of clinic facilities that may have been provided at the hospitals.

3. Whether or not the patient was regularly attended by a graduate nurse in the home (bedside nursing).

4. Whether or not the patient was attended by osteopath, chiropractor, midwife, or "practitioner of any kind."

5. If no medical or other service of the kinds already mentioned was had, the informant was encouraged to state what sort of self-medication was employed, or whether or not advice from school or industrial nurse or druggist was obtained.

As to the accuracy and completeness of the information obtained, we feel that our records of attendance of medically trained physicians, graduate nurses, and osteopaths, chiropractors, midwives, and others are satisfactory. That is, for all persons who suffered from illness during the period, which in fact means all persons who were in such a condition of ill health as to suffer definitely morbid effects, the record of these services was practically complete. Furthermore, since 67 per cent of the population group was actually under observation for at least two years, and over 90 per cent for at least one

TABLE 1.—*Number of cases of illness, by cause of illness, occurring in a white population group in Hagerstown, Md., during the period December 1, 1921–March 31, 1924, with information as to the number receiving medical, hospital, and other*

Diseases and conditions causing illness. (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Number of illnesses with information stated	Attended by a physician [1]	In hospital [2]	Attended by a chiropractor	Attended by an osteopath	Self-medication and other [3]
All diseases	17,217	7,953	230	23	48	383
Total respiratory (except operations) (11, 31, 97–107, 109)	10,461	3,555	22	7	18	255
Influenza and grippe (11)	2,317	1,541	1	2	3	77
Pneumonia (all forms) (100, 101)	111	108	8			
Pleurisy (102)	33	29				
Diseases of pharynx (109)	1,061	508		1	8	23
Tonsillitis	465	341		1	6	11
Sore throat	497	103			2	11
Quinsy	49	36				
Other diseases of pharynx	50	28				1
Diseases of larynx (98)	183	62				4
Laryngitis	92	33				3
Croup	86	28				1
Other diseases of larynx	5	1				
Hay fever and asthma (105 and part of 107)	86	40				4
Tuberculosis, pulmonary (31)	48	47	12			
Other diseases of the respiratory system (including head colds, chest and bronchial conditions (97, 99, 103, 107)	6,622	1,220	1	4	7	147
Tonsillectomy, adenoidectomy, or both (part of 109)	119	119	22			
Other operations on throat and nasal fossae	8	8				
Epidemic, endemic, and infectious diseases (1–42, excluding 11 and 31)	1,423	863	11		2	44
Typhoid (1)	19	19	2			
Measles (7)	556	367			1	23
Scarlet fever (8)	34	33			1	
Whooping cough (9)	365	178				9
Diphtheria (10) [1]	45	44				
Cholera nostras (15)	35	17	1			1
Chicken pox (25a)	227	101				9
German measles (25b)	18	7				
Tuberculosis, nonpulmonary (32–37)	14	13	7			
Vaccinia (42)	38	29				
Other diseases in this group [1] (2–6, 12–24, 26–30, 38–41, and part of 42)	72	55	1			2
General diseases (43–69)	335	227	17	2	4	6
Cancer (43–49)	21	21	4			
Rheumatism, acute and chronic (51, 52)	253	157	8	2	4	6
Diabetes mellitus (57)	15	13	1			
Exophthalmic goiter (60a)	9	9	2			
Other general diseases (50, 53, 56, 58, 59, 60b,[4] 61–69)	9	9	2			
Diseases of the nervous system (70–84, part of 205)	686	334	6	4	2	7
Cerebral hemorrhage and apoplexy (74)	9	9	1			
Paralysis (75)	23	22				
Epilepsy (78)	9	5				
Chorea (81)	19	17				1
Neuralgia (part of 82)	100	38		1		2
Neuritis and sciatica (part of 82)	86	50		1	2	1
Headache (part of 82 and 205)	237	27		1		8
Neurasthenia (part of 84)	164	132		1		
Other nervous diseases (71–73, 76, 77, 79, 80, 83, part of 82 and 84)	39	34	5			
Diseases of the eyes and annexa (85)	119	72				4
Pink eye	32	16				
Other conjunctivitis and sore eyes	31	19				
Sty	16	5				3
Other eye conditions	40	32				1
Diseases of the ears and mastoid process (86)	175	112	9			2
Otitis media	114	81				2
Mastoiditis	10	10	9			
Other and unqualified diseases of the ear	51	21				
Diseases of the circulatory system (87–96)	287	239	5		1	4
Diseases of the heart (87–90)	154	144			1	1
Arteriosclerosis (part of 91)	19	19				
Hemorrhoids (part of 93)	18	13	5			1
Adenitis (part of 94)	43	22				1
High blood pressure (part of 96)	19	18				
Other diseases of circulatory system (92, 95, part of 91, 93, 94, 96)	34	23				1

Footnotes at end of table.

TABLE 1.—*Number of cases of illness, by cause of illness, occurring in a white population group in Hagerstown, Md., during the period December 1, 1921–March 31, 1924, with information as to the number receiving medical, hospital, and other service*—Continued

Diseases and conditions causing illness. (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Number of illnesses with information stated	Attended by a physician	In hospital	Attended by a chiropractor	Attended by an osteopath	Self-medication and other
Diseases and disorders of the digestive system (110–127, part of 108 and 205)	1,555	900	63	4	10	42
Ulcers of stomach and duodenum (111)	11	11				
Indigestion and upset stomach (112)	700	322		1	3	24
Biliousness (part of 205)	155	60	1			7
Stomach trouble unqualified (112)	116	55	1	2	1	1
Diarrhea, under 2 years (113)	75	63	1			1
Diarrhea, 2 years and over (114)	135	75				6
Appendicitis (117)	84	72	30	1	4	
Hernia (118a)	23	17	8		1	
Intestinal disorders including constipation (118b, 119)	35	27	6			
Biliary calculi (123)	68	62	11			2
Cholecystitis (part of 124)	30	29	1		1	
Jaundice (part of 124)	45	40				1
Other diseases of liver (part of 124)	26	25	1			
Other diseases of the digestive system (110, 116, 126, and 108, except teeth and gums)	52	42	3			
Diseases of the teeth and gums (part of 108)	118	70				
Toothache	41	12				
Tooth abscess	49	32				
Teeth unqualified	28	26				
Diseases of the kidney and annexa (128–134)	175	153	7		2	2
Acute nephritis	9	8				
Chronic nephritis	42	39			2	
Other and unqualified kidney trouble (131)	69	58	2			2
Cystitis (part of 133)	19	15				
Bladder trouble unqualified (part of 133)	20	17	2			
Calculi of urinary passage (132)	14	14	1			
Other diseases in this group (134)	2	2	2			
Nonvenereal diseases of genito-urinary system (135–142)	180	140	34			1
Diseases of male organs (135, 136)	9	8	5			
Diseases of female genital organs (137–139, part of 140, 141, 142)	98	89	29			1
Menstruation (part of 141)	47	22				
Menopause (part of 141)	26	21				
Puerperal state (143–150)	390	384	14			6
Abortion and still birth (part of 143)	32	32	6			
Confinements (149 and part of 185) [1]	321	316	5			[5] 5
Other puerperal conditions (143–150)	37	36	3			1
Diseases of the skin and cellular tissue (151–154, part of 205)	278	154	1		1	4
Furuncle (152)	69	33				
Abscess (153)	27	22	1			
Impetigo contagiosa (part of 154)	24	17				
Scabies and itch (part of 154)	23	12				
Rash (part of 205)	18	7				2
Hives (part of 205)	19	9				
Sores on body (part of 205)	54	15				2
Other and unqualified skin conditions (part of 154 and 205)	44	39			1	
Diseases of bone and organs of locomotion (155–158, part of 205)	103	66	6	2	1	1
Lumbago, myalgia, and myositis (part of 158)	47	30	1			1
Backache (part of 205)	32	18			1	
Other diseases of the bones and organs of locomotion (155, 156, and part of 158)	24	18	5	2		
Congenital malformation and infancy (159–163)	19	17	1			
Senility (164)	11	7				
External causes (165–203)	638	464	10	3	3	4
All poisonings (175–177)	46	27				2
Burns (178–179)	33	19				1
Fractures, wounds, injuries (183–188, 201, 202)	529	395	9	3	3	
Other external causes (165–174, 181–182, 189, 190–196)	30	23	1			1
Ill-defined and unknown	137	69	2	1	4	1

[1] One each of the following illnesses had a trained nurse at home: Diphtheria, gonococcus infection, confinement.

[2] Hospital cases included in number attended by physician.

[3] Includes cases treated on advice of druggist, school, and industrial nurses or other persons.

[4] Includes only simple goiter when it caused some illness in the period.

[5] Midwife.

year, it is believed that a record of total medical and other attendance was obtained for the cases recorded. The same is true of cases that were hospitalized. We feel, however, that the records of self-medication are an understatement, for the reasons that the inquiry was not always made, although in many instances the information was volunteered, and that probably some persons not becoming ill during the period of study or not complaining of ill health resorted to the use of medicines without our having the opportunity to elicit the information.

The details of the information secured are given in Table 1 for illnesses classified as to cause in order that any one interested may be enabled to make such use of them as he may see fit. For purposes of a brief comment, four summary tables are presented.

TABLE 2.—*Per cent of cases of illness, classified by broad groups according to cause, occurring in a white population group in Hagerstown, Md., which received medical, hospital, and other care, Dec. 1, 1921–Mar. 31, 1924*

Groups of causes (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Number of illnesses for which information was obtained	Per cent with specified type of service				
		Attended by physician	In hospital [1]	Chiropractor	Osteopath	Self-medication and other [2]
All diseases	17,217	46	1.34	0.13	0.28	2.25
Diseases of the respiratory system (11, 31, 97–107, 109) [3]	10,461	34	.21	.07	.17	2.44
Epidemic, endemic, and infectious diseases (1–42 except 11 and 31)	1,423	61	.77		.14	3.09
Other general diseases (43–69)	335	68	5.07	.60	1.19	1.79
Diseases of nervous system (70–84, part of 205)	686	49	.87	.58	.29	1.02
Diseases of eyes and annexa (85)	119	61				3.36
Diseases of ears and mastoid process (86)	175	64	5.14			1.14
Diseases of circulatory system (87–96)	287	83	1.74		.35	1.39
Diseases and disorders of digestive system (110–127, part of 108 and 205)	1,555	58	4.05	.26	.64	2.70
Diseases of teeth and gums (part of 108)	118	59				
Diseases of kidney and annexa (128–134)	175	87	4.00		1.14	1.14
Nonvenereal diseases of genito-urinary system (135–142)	180	78	18.89			.56
Confinement and other puerperal conditions (143–150)	390	98	3.59			1.54
Diseases of skin and cellular tissue (151–154, part of 205)	278	55	.36		.36	1.44
Diseases of bones and organs of locomotion (155–158, part of 205)	103	64	5.83	1.94	.97	.97
Congenital malformations and infancy (159–163)	19	89	5.26			
Senility (164)	11	64				
External causes (165–203)	638	73	1.57	.47	.47	.63
Ill-defined and unknown	137	50	1.46	.73	2.92	.73

[1] Hospital cases included in per cent "Attended by physician."
[2] Includes cases treated on advice of druggist, school, and industrial nurses or other persons.
[3] Excluding 127 tonsillectomies and other operations (nonrespiratory) on throat and nasal fossae.

The first of these tables is a summarization (Table 2) which shows the proportion of all illnesses attended by physicians, etc., as well as the proportions of illnesses so attended classified according to certain broad groupings under the International List of Causes of Death. Here it is seen that 46 per cent of *all* illnesses lasting about three days or longer were attended by medically trained physicians and

1.34 per cent were hospitalized. Surprising as it may appear, only three cases of illness were attended by trained nurses at home. Chiropractors and osteopaths attended 0.41 of one per cent, osteopaths attending 48 cases and chiropractors 23 cases. Whether or not this distribution of cases according to the kind of attendance is actually typical obviously we are unable to say. It was found to exist for a population which is not unrepresentative of cities of a given size, kind, and geographical section; further studies are necessary to determine whether or not the condition itself is general.

That less than half of the illnesses were attended by physicians may be regarded in one sense as an understatement of the extent of medical service rendered because many of the illnesses recorded were mild cases that ordinarily do not require medical attention. It must be clearly understood, of course, that we are not speaking of "visits," but of cases; the number of visits per case was not ascertained, although for an adequate study of medical service it certainly would be a pertinent item for inquiry. Just what *cases* ought or ought not to have a physician is a question about which opinions will differ; the record of our observations is given in sufficient detail, it is hoped, to permit of an interpretation from almost any broad standard that may be set up for the extent of medical service from the point of view of the disease involved. The proportion of cases attended varies, of course, with their nature (disease), discomfort, and severity Thus, only 34 per cent of respiratory attacks received medical attention as against over 80 per cent of illnesses resulting from diseases of the nervous system and of the kidneys. If, for example, we omit "colds" and minor digestive disturbances, which numbered about 7,500 of the total cases recorded, we find that 65 per cent of the remaining cases were attended by physicians.

A more satisfactory way of considering the results of our observations is to take cases of illness resulting from specific diseases. In Table 3 this has been done for 58 of these categories. The diseases have been arranged in the order of the proportion receiving attention from physicians; for each disease is also shown the percentage which were hospitalized. As a matter of possible interest, the frequency with which cases of the different diseases were attended by osteopaths or chiropractors is also shown. The proportion resorting to self-medication is given, but for comparison by disease only, since, as has been pointed out, we do not feel that a complete record of self-medication, "drug-store treatment," etc., was obtained.

Since so large a proportion of the illnesses were respiratory, it may be interesting to show them in greater detail. During the second half of our study an attempt was made to record more exactly the nature of the illnesses which previously had been recorded as "colds."

TABLE 3.—*Per cent of cases of illness from certain specific causes occurring in a white population group in Hagerstown, Md., which received medical, hospital, and other care, December 1, 1921–March 31, 1924*

Diseases (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Number of illnesses with information stated	Per cent of cases receiving specified type of service			
		Attended by physician[1]	Attended by osteopath or chiropractor	In hospital[2]	Self-medication[3]
Typhoid (1)	19	100		10.53	
Cancer (43–49)	21	100		19.05	
Cerebral hemorrhage (74)	9	100		11.11	
Arterio sclerosis (part of 91)	19	100			
Ulcers of stomach and duodenum (111)	11	100			
Abortion and stillbirths (part of 143)	32	100		18.75	
Mastoiditis (part of 86)	10	100		90.00	
Tonsillectomy, adenoidectomy, or both (part of 109)	119	100		18.49	
Tuberculosis, pulmonary (31)	48	98		25.00	
Diphtheria (10)[1]	45	98			
Confinements (149 and part of 185)[1]	321	98		1.56	[4] 1.56
Pneumonia (100–101)	111	97		7.21	
Scarlet fever (8)	34	97	2.94		
Cholecystitis (part of 124)	30	97	3.33	3.33	
Paralysis (75)	23	96			
High blood pressure (part of 96)	19	95			
Diseases of the heart (87–90)	154	94	.65		.65
Tuberculosis, nonpulmonary (32–37)	14	93		50.00	
Biliary calculi and calculi of urinary passages (123 and 132)	82	93		14.63	2.44
Nephritis (128 and 129)	51	92	3.92		
Jaundice (part of 124)	45	89			2.22
Chorea (81)	19	89			5.26
Congenital malformation and early infancy (159–163)	19	89		5.26	
Pleurisy (102)	33	88			
Diabetes mellitus (57)	15	87		6.67	
Appendicitis (117)	84	86	5.95	35.71	
Diarrhea, under two years (113)	75	84		1.33	1.33
Cystitis and "bladder trouble" (133)	39	82		5.13	
Menopause (part of 141)	26	81			
Abscess (153)	27	81		3.70	
Neurasthenia (part of 84)	164	80	.61		
Fractures, wounds, and other injuries (183–188, 201, 202)	529	75	1.14	1.70	
Hernia (118a)	23	74	4.35	34.78	
Tonsillitis (part of 109)	465	73	1.51		2.37
Quincy (part of 109)	49	73			
Otitis media (part of 86)	114	71			1.75
Impetigo contagiosa (part of 154)	24	71			
Influenza and grippe (11)	2,317	67	.22	.04	3.32
Measles (7)	556	66	.18		4.14
Lumbago, myalgia, myositis (part of 158)	47	64		2.13	2.13
Rheumatism (51 and 52)	253	62	2.37	1.19	2.37
Poisoning, food and others (175–177)	46	59			4.34
Burns (178–179)	33	58			3.03
Neuritis and sciatica (part of 82)	86	58	3.49		1.16
Diarrhea, 2 years and over (114)	135	56			4.44
Scabies (part of 154)	23	52			
Adenitis (part of 94)	43	51			2.33
Whooping cough (9)	365	49			2.47
Furuncle (152)	69	48			
Hay fever and asthma (105 and part of 107)	86	47			4.65
Menstruation (part of 141)	47	47			
Stomach trouble (part of 112 and 205)	971	45	.72	.20	3.29
Chicken pox (part of 25)	227	44			3.96
Neuralgia (part of 82)	100	38	1.00		2.00
Laryngitis (part of 98)	92	36			3.26
Sore throat (part of 109)	497	21	.40		2.21
Colds and bronchial conditions (97, 99, 103, 107)	6,622	18	.17	.02	2.22
Headache (part of 82 and 205)	237	11	.42		1.27

[1] One each of the following illnesses had trained nurse at home: Diphtheria, confinement.
[2] Hospital cases included in "Per cent attended by physician."
[3] Cases treated on advice of druggists, school, and industrial nurses or other persons.
[4] Mid-wife.

Hence in Table 4 the observations on medical and other service are given for seven fairly definite respiratory classes in addition to a group which, for lack of more specific information, had to be called "colds, unqualified." Only 7 per cent of the coryzas recorded were attended by physicians, 20 of sore throats, as against 30–40 per cent of bronchitis and laryngitis, 67 per cent of influenza and grippe, and 73 per cent of tonsillitis. It is impossible to judge of the disparity between the 21 per cent of sore-throat cases attended by physicians and the 73 per cent of tonsillitis cases, for the reason that no diagnosis, other than that reported by the patient or the lay informant, was made of 80 per cent of the sore throats.

TABLE 4.—*Per cent of 6,992 cases of illnesses from certain respiratory diseases occurring in a white population group in Hagerstown, Md., which received medical, hospital, and other care* [1]

Diseases (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Number of illnesses with information stated	Per cent with specified type of service			
		Attended by physician	Attended by osteopath or chiropractor	In hospital [2]	Self-medication [3]
Tonsillitis (part of 109)	465	73	1.51		2.4
Influenza and grippe (11)	2,317	67	.22	0.04	3.3
Laryngitis (part of 98)	92	36			3.3
Bronchitis, chronic (99)	29	35			6.9
Bronchitis, acute (99)	984	31	.41	.10	2.3
Sore throat (part of 109)	497	21	.40		2.2
Coryza (97)	1,780	7	.11		2.3
Colds unqualified (107)	828	14	.24		3.6

[1] The cases of colds, coryza, and chronic and acute bronchitis included in this table occurred during the period February, 1923–March, 1924. The other cases occurred during the period December, 1921–March, 1924.
[2] Hospital cases included in per cent "Attended by physician."
[3] Includes cases treated on advice of druggist, school, and industrial nurses or other persons.

It may be of interest to consider these records from another point of view, namely, What sort of cases is the physician, the hospital, or other service chiefly concerned with under actual conditions as found in a typical small city? As a general answer to this question, Table 5 has been prepared, in which the percentage distribution of each of these services is given according to the customary broad groups of diseases. Thus it is seen that nearly half of the cases attended by physicians are respiratory attacks, 11 per cent are diseases and disorders of the digestive system, and another 11 per cent those diseases which are commonly grouped under the general heading "Epidemic, endemic, and infectious." Two-thirds of the physician's cases fall in these three classes—respiratory, digestive, and infectious. About 6 per cent are cases arising from "external causes," chiefly accidents, 5 per cent are confinements and conditions incident to childbirth, and 4 per cent are due to diseases and conditions of the nervous system. The distribution of cases receiving hospital care shows a sharp contrast to the distribution of those attended by physicians

in their practice, although hospitalized cases are included in the physician's cases. Thus, in this particular locality, more than one-fourth (27.4 per cent) of the hospital cases were due to diseases and disorders of the digestive system, chiefly appendicitis, hernia, and biliary calculi, as may be seen by reference to Table 1; 15 per cent were due to nonvenereal diseases of the genito-urinary system, nearly all of which were in females; 10 per cent were tonsillectomies and adenoidectomies, and another 10 per cent were respiratory, nearly all of which were pulmonary tuberculosis and pneumonias. Only 6 per cent of the hospital cases were maternity cases—an extraordinarily small proportion in comparison with what has been observed in larger cities. Only 5 of the 321 confinements (exclusive of abortions and stillbirths) occurring in the population observed were hospitalized, although 316 of the 321 cases were attended by physicians. This is to be explained, we believe, chiefly on the ground of local tradition and custom, since Hagerstown is an old settled community.

TABLE 5.—*Distribution, according to disease group, of illnesses receiving medical, hospital, and other care in a white population group in Hagerstown, Md., December 1, 1921–March 31, 1924*

Diseases (Numbers in parentheses refer to those in the International List of the Causes of Death, 1920)	Per cent each disease group is of total cases receiving specified care				
	Attended by physician	In hospital [1]	Attended by chiropractor	Attended by osteopath	Self-medication [2]
All diseases	100.0	100.00	100.0	100.0	100.0
Diseases of the respiratory system (11, 31, 97–107, 109)	44.7	9.57	30.4	37.5	66.0
Diseases and disorders of the digestive system (110–127, pts. 108 and 205)	11.3	27.39	17.4	20.8	11.0
Epidemic, endemic, and infectious diseases (1–42, except 11 and 31)	10.9	4.78	----------	4.2	11.5
External causes (165–203)	5.8	4.35	13.0	6.2	1.0
Confinements and other puerperal conditions (143–150)	4.8	6.09	----------	----------	[3]1.6
Diseases of the nervous system (70–84, pt. 205)	4.2	2.01	17.4	4.2	1.8
Diseases of the circulatory system (87–96)	3.0	2.17	----------	2.1	1.0
Other general diseases (43–69)	2.9	7.39	8.7	8.3	1.6
Diseases of skin and cellular tissue (151–154, pt. 205)	1.9	.43	----------	2.1	1.0
Diseases of kidney and annexa (128–134)	1.9	3.04	----------	4.2	.5
Nonvenereal diseases of the genito-urinary system (135–142)	1.8	14.78	----------	----------	.3
Tonsillectomy, adenoidectomy, and others [4]	1.6	9.57	----------	----------	----------
Diseases of ear and mastoid process (86)	1.4	3.91	----------	----------	.5
Diseases of eyes and annexa (85)	.91	----------	----------	----------	1.0
Diseases of teeth and gums (part of 108)	.88	----------	----------	----------	----------
Ill-defined and unknown	.86	.87	4.3	8.3	.3
Diseases of bones and organs of locomotion (155–158, part of 205)	.83	2.61	8.7	2.1	.3
Congenital malformation and infancy (159–163)	.21	.43	----------	----------	----------
Senility (164)	.09	----------	----------	----------	----------

[1] Hospital cases included in per cent "Attended by physician."
[2] Includes cases treated by druggist, school, and industrial nurse or other persons.
[3] Midwife.
[4] Eight other operations on throat and nasal fossae included.

Of the limited practice engaged in by osteopaths and chiropractors in this locality, about one-third of the cases were minor respiratory disorders, and about one-fourth were digestive ailments. The de-

tails of the 71 cases attended by osteopaths and chiropractors are shown in Table 1. Two-thirds of the cases treated by self-medication, upon advice of druggists, etc., were for respiratory ailments, the great majority of which were common colds, and 11 per cent for digestive disorders.

The data presented in this brief communication suggest, it is believed, the desirability of further and more detailed studies in communities of varying types and in populations of different racial and economic conditions in order to furnish answers to a number of questions on which there is at present a good deal of debate and not a little confusion.

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PUBLIC HEALTH ENGINEERING ABSTRACTS

Chlorination of Water and Sewage.—Earle B. Phelps. (Discussion by L. H. Enslow.) Journal of the Boston Society of Civil Engineers, vol. 13, Nos. 4 and 5, April and May, 1926, pp. 233–243. (Abstract by L. H. Enslow.)

Chlorination of water.—For the production of the desired efficacy of chlorine in water sterilization, a trace or more of residual chlorine as determined by the orthotolodine test is essential. The period of contact between the water and the chlorine is relatively unimportant provided the proper quantity of residual chlorine is maintained in a relatively clean water after a contact period of 10 minutes.

Substitution compounds formed between the chlorine and organic matters in the water may produce a sterilizing effect upon effecting long periods of contact. When such compounds are formed and great length of storage is available, residual chlorine is sometimes unnecessary. The effect is similar to that obtained with chloramines. The more dependable procedure is to maintain a measurable excess of residual chlorine and thus insure a rapid removal of bacteria and algae. Thus, also, a "measuring stick" is available for sterilization efficiency control where the residual chlorine test is applied.

Residual chlorine in the water leaving the plant, preventing "aftergrowths," likewise stands as a preventive against accidental pollution in reservoirs, and the mains following repair service.

In general, the greater the soluble organic matter or ammonia content carried by the water, the greater the permissible residual chlorine content without taste and odor production. Also in organic waters the higher the residual chlorine content (within reason), the less likelihood there is of residual *by-product tastes* remaining in the water supplies to consumers. Waters of extremely low organic or ammonia content may have a chlorinous odor with as little as 0.2 p. p. m. residual chlorine present. In chlorinating organic water the liability of producing an excess, and consequently a chlorinous taste, is less to be dreaded than the by-product taste resulting from underchlorination.

The rate of dissipation of available chlorine is governed to an extent by the hydrogen ion concentration (pH value) of the water. Waters nearly void of bicarbonate and possessing mainly normal carbonates alkalinity will form hypochlorites, which do not give up their available chlorine readily in the absence of hydrogen ions. Softened water without recarbonation is thus likely to cause complaints, due to failure of the available chlorine to dissipate in the high pH medium.

Chlorine by-products resulting from chlorination of waters containing dead vegetable matter may be destroyed with excess chlorine, i. e., superchlorination.

Split chlorination wherein the raw water receives prechlorination and the filter effluent secondary chlorination is gaining prestige. The reduction of the bacterial load on the filters, although the primary reason for prechlorination, is accompanied by other advantages such as operating economy. In split chlorination practice, dual protection is afforded; and with increasing pollution of the raw-water supply, prechlorination and dual chlorination is gaining greater recognition.

Chlorination of sewage.—In sewage chlorination it is evident that the efficacy of the process is dependent upon maintaining excess or residual chlorine. The period of contact when residual chlorine is present is of secondary importance—not more than a 10-minute period being necessary. In the absence of residual chlorine the bacterial efficiency is low. Long contact periods have some merit when the chlorine dosage is barely less than sufficient to produce residual after a 10-minute contact. Without residual chlorine tests being systematically made, there is no "measuring stick" available to apply to the process, except the bacteriological test. In the absence of residual chlorine such must be made immediately following sampling if misleading results are to be avoided. The long contact period in the sample bottle has an effect which does not exist at the

treating plant, and apparent reduction in bacteria is not obtained similarly in the plant effluent subject to less period of contact before discharge.

The chlorine demand of sewages is quite variable. This is not alone true for various sewages, but the demand varies materially for a particular sewage effluent at various seasons of the year. Frequently the demand in summer is double that observed in winter. Septic sewage, and particularly such when the carriage water initially contains appreciable sulphate content, has a considerably higher chlorine demand than fresh sewage.

Odors from sewage effluents are destroyed through addition of chlorine, which combines directly with the odor-producing matters, such as hydrogen sulphide. The decay and subsequent odor production in sewage may be materially reduced or eliminated if chlorine is applied early in the life of the sewage. Less chlorine than required to produce residual chlorine retards septization and odor production markedly.

In prechlorination of crude sewage the solids play a very limited rôle in chlorine demand. Residual chlorine in crude sewage remains but little diminished after several hours' contact unless there is further breaking up of the solids during the contact period.

Chlorine demand of sewage is influenced by an increase or decrease of the pH value above or below the neutral point pH 7.

Chlorine, as a result of its direct combination with organic radicals to form substitution products, rather than oxidation products of the organic matter in solution or pseudo solution, reduces the potential power of sewage to decay. The biochemical oxygen demand is reduced as a result of chlorination. This reduction is permanent or *actual reduction* as contrasted with temporary reduction or delayed oxygen demanding power previously considered to be the case. Such decrease in oxygen demand is observed well ahead of satisfactory disinfection or the presence of residual chlorine. For maximum reduction, however, chlorine sufficient to produce residual is requisite. The reduction of the 24-hour oxygen demand is approximately one-half that of the 5-day demand reduction.

The residual chlorine control test, being simple, is applicable in the smallest or the largest sewerage plant. It is the only sure index of continuous performance and indicates simultaneously optimum disinfection and oxygen demand reduction of the effluent. Its use is productive of chlorine economy and chlorination efficiency.

Sludge Digestion at Small Plants. T. C. Schaetzle. Public Works, Vol. 57, No. 9, October, 1926, pp. 346–349. (Abstract by M. S. Foreman.)

A review is made of a number of small institutional sewage treatment plants in Maryland by the State bureau of sanitary engineering.

The application of lime to sludge, without chemical control, was tried at a number of small institutional plants. The results obtained were quite variable, and generally unsatisfactory. "At the Maryland Tuberculosis Sanatorium, Imhoff installations, where the addition of lime to the gas vent failed, all the sludge was withdrawn from the tank and it was seeded with secondary Imhoff tank sludge." This resulted in a well-digested primary tank sludge. A number of other plants facilitated their sludge digestion by the addition of the contents of an old privy or by adding horse or cow manure.

Samples of water, sewage, and sludge were obtained from the institutions studied in order to determine their relation in preparation to producing a chemically controlled sludge. An analysis of these materials and their relations is presented in two tables and two charts. Table 1 shows the relation of types of tanks, volatile matter, nitrogen, grease content, and pH values of various sludges. Table 2 gives the relation between the pH values of tap water, influents, effluents, and sludges of the sewage treatment plants.

The conclusions are as follows: (1) There is a relation between the pH value of tap water and degree of digestion of the sludge. (2) When the tap water has a pH value greater than 8.0, the sludge probably will be well digested. When the tap water has a pH value less than 8.0, the sludge may not be well digested, unless its pH is artificially regulated. (3) In spite of the increase of pH value of the tank influents, probably due to soaps, there is an apparent acid decomposition taking place in the tank and sludge. (4) For primary or separate digestion tanks, the sludge probably will be undigested when the pH value is less than 7.0. (5) For secondary tanks, the sludge is apparently well digested when the pH value is 6.8 or above, extending perhaps as high as 8.8. (6) A definite relation exists between pH values and grease content of the sludge and between pH values and volatile matter of the sludge. The higher the pH value, the lower the grease content, and the higher the pH value the lower the volatile matter content. (7) A definite relation exists between the grease and volatile matter contents of sewage; with an increase in volatile matter, there is an increase in grease content.

Stream Pollution. Edgar Whedbee, C. E., District Sanitary Engineer, Texas State Board of Health. Bulletin No. 1, Proceedings of Eighth Texas Water Works Short School, Ft. Worth Tex., January 18–23, 1926, pp. 133–318. (Abstract by H. B. Hommon.)

A general treatise on stream pollution, with the following table showing the decrease in the *B coli* of a stream receiving sewage in the winter and the summer:

From maximum density,[1] hours	Winter B. coli per c. c.	Summer B. coli per c. c.
0	10,000	40,000
10	6,000	14,000
25	3,500	5,900
50	2,000	2,000
75	1,200	600
100	840	270
125	600	120
150	420	57
175	300	27
200	200	14

[1] Maximum density occurs 10 to 30 hours after sewage enters a stream.

Activated Sludge Processes. Walter C. Roberts. Public Works, vol. 57, No. 10, November, 1926, pp. 378–381. (Abstract by C. L. Pool.)

A terse explanatory survey of the process is given, with historical outline and descriptive list of domestic and foreign plants. Four primary units are usual: (1) Some method for removing coarser solids; (2) aeration tanks; (3) clarifier; (4) sludge disposal works.

Purposes and details of units are described, including screens and settling tanks, maintenance of aerobic conditions in aeration tanks by agitation with air and by agitation with mechanical devices. Ridge and furrow and Manchester, or circulating, types of aeration tanks are described; also devices for return and reconditioning the sludge. Mechanical squeegeeing of sludge to the center of the clarifier is the commoner type. Sludge disposal experience with sand beds, fertilizer production, mechanical filters, chemical treatment, lagoons, and direct irrigation on agricultural land is reviewed.

Uses and prospects of the process are noted, with reference to use as a preliminary treatment for sprinkling filters and for trade wastes. Initial costs of plants vary from $10 to $30 per capita, and operating costs vary from $20 to $50 per million gallons. Advantages summarized are (1) little odor or fly nuisance; (2) small area and nearness to city possible; (3) effluent easy to chlorinate and throws no burden on receiving stream; (4) effluent does little or no harm to aqueous life; (5) adaptable to sewage containing trade wastes; (6) sludge has relatively high fertilizing value; (7) effluent is well adapted for crops.

The Sterilization of Food Utensils. Anon. New Jersey State Department of Health Bulletin, vol. 9, No. 9, September, 1926, pp. 1–3. (Abstract by H. V. Pedersen.)

Regulations for the washing and sterilization of all cooking and eating utensils have been adopted by the New Jersey State Department of Health. All hotels, restaurants, cafes, soda fountains, and all other places where food is cooked will be required to provide

adequate facilities for the treatment of cooking and eating utensils by boiling water or by steam under pressure. All utensils intended for a second use must be subjected to treatment with boiling water or steam under pressure for at least three minutes after each service or by such other method as shall be considered effective sterilization

No objection will be made to the use of washing compounds provided they are removed by proper rinsing; but sterilization by either washing compounds or chlorine is not considered satisfactory or sufficient to take the place of sterilization by boiling water or steam under pressure.

The department of health will not attempt to dictate the type or kind of apparatus necessary to effect sterilization, but will leave this question entirely in the hands of the owner to work out a scheme that best suits his location. The health department will simply judge results.

All drug stores or other places that find it impossible to install sterilization equipment will be permitted to use individual paper cups.

Regional Planning in Relation to Public Health. Thomas Adams, General Director of Plans and Surveys, Regional Plan of New York and its Environs, Russell Sage Foundation, New York City. American Journal of Public Health, vol. 16, No. 11, November, 1926, pp. 1114–1121. (Abstract by E. S. Tisdale.)

This article describes in a general way the relation of regional planning to public health. Regional planning is not a substitute for what has heretofore been known as city or town planning, but is the planning for large areas which have as their nucleus cities or towns.

The object of regional planning is to secure health, order, safety, convenience, and general welfare in connection with the physical growth of the communities. Health comes first and is involved in every phase of regional planning, more especially water supply and sewage disposal, housing in the central and suburban areas, from the points of view of land development and sanitation, parks, playgrounds and other open areas, placing and surroundings of schools, refuse collection and disposal, and placing and planning of correctional and welfare institutions.

As an example of the necessity for regional planning and the accomplishment of having the same, the Buffalo Metropolitan Region is cited.

Living conditions in New York, unbalanced development, underlying cause of defective urban growth, high buildings, planning for future growth, etc., are all discussed briefly.

DEATHS DURING WEEK ENDED DECEMBER 25, 1926

Summary of information received by telegraph from industrial insurance companies for week ended December 25, 1926, and corresponding week of 1925. (From the Weekly Health Index, December 30, 1926, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec. 25, 1926	Corresponding week, 1925
Policies in force	66, 348, 549	62, 446, 446
Number of death claims	11, 629	9, 652
Death claims per 1,000 policies in force, annual rate	9. 1	8. 1

Deaths from all causes in certain large cities of the United States during the week ended December 25, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, December 30, 1926, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 25, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Dec. 25, 1926 [2]
	Total deaths	Death rate [1]		Week ended Dec. 25, 1926	Corresponding week, 1925	
Total (64 cities)	6, 985	12. 7	12. 1	718	677	[3] 59
Akron	26			4	5	43
Albany [4]	34	14. 9	9. 3	1	1	21
Atlanta	76			10	12	
White	43			6	4	
Colored	33	(5)		4	8	
Baltimore [4]	232	15. 0	13. 3	19	22	58
White	181			11	16	41
Colored	51	(5)		8	6	127
Birmingham	56	13. 8	12. 7	3	6	
White	23			1	4	
Colored	33	(5)		2	2	
Boston	258	17. 1	14. 3	28	22	78
Bridgeport	42			1	3	17
Buffalo	119	11. 4	11. 5	14	16	59
Cambridge	26	11. 1	12. 2	3	0	53
Camden	41	16. 3	15. 0	7	8	117
Canton	14	6. 6	13. 2	2	6	44
Chicago [4]	647	11. 1	10. 3	77	55	67
Cincinnati	110	14. 0	16. 1	3	12	19
Cleveland	192	10. 4	9. 0	19	20	49
Columbus	81	14. 8	14. 5	5	8	47
Dallas	41	10. 5	10. 8	4	6	
White	34			3	4	
Colored	7	(5)		1	2	
Dayton	51	15. 0	12. 1	6	5	99
Denver	71	13. 0	11. 5	8	8	
Des Moines	44	15. 7	8. 1	4	2	67
Detroit	293	11. 8	10. 8	50	47	81
Duluth	17	7. 8	9. 9	2	2	46
El Paso	21	10. 0	18. 4	8	7	
Erie	27			4	1	78
Fall River [4]	37	14. 7	15. 0	1	7	16
Flint	17	6. 5	5 2	4	2	68
Fort Worth	35	11. 5	13. 1	4	5	
White	30			3	5	
Colored	5	(5)		1	0	
Grand Rapids	32	10. 7	7. 8	6	2	86
Houston	52			4	6	
White	36			3	5	
Colored	16	(5)		1	1	
Indianapolis	94	13. 4	12. 8	6	8	45
White	81			4	5	35
Colored	13	(5)		2	3	115
Jersey City	77	12. 6	10. 1	12	3	91
Kansas City, Kans	29	12. 9	7. 2	2	1	39
White	24			1	1	22
Colored	5	(5)		1	0	152
Kansas City, Mo	94	13. 1	12. 6	8	8	
Los Angeles	251			21	15	59

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended December 25, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925—Continued

City	Week ended Dec. 25, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Dec. 25, 1926 [2]
	Total deaths	Death rate [1]		Week ended Dec. 25, 1926	Corresponding week, 1925	
Louisville	75	12.6	16.6	5	8	43
White	60			4	4	39
Colored	15	(5)		1	4	70
Lowell	24			3	2	58
Lynn	20	10.0	11.6	1	5	26
Memphis	63	18.6	15.8	6	6	
White	29			3	3	
Colored	34	(5)		3	3	
Milwaukee	105	10.6	7.8	11	17	52
Minneapolis	92	11.1	9.7	6	12	33
Nashville [4]	43	16.4	11.5	5	3	
White	22			3	2	
Colored	21	(5)		2	1	
New Bedford	28			2	2	35
New Haven	46	13.2	12.5	0	4	0
New Orleans	161	20 0	19.1	18	13	
White	87			8	8	
Colored	74	(5)		10	5	
New York	1,451	12.8	11.4	138	123	56
Bronx Borough	158	9.2	8.6	12	6	40
Brooklyn Borough	469	10.9	10.6	46	59	47
Manhattan Borough	645	17.9	14.6	68	51	75
Queens Borough	131	8.9	7.7	10	7	46
Richmond Borough	48	17.5	15.1	2	0	35
Newark, N. J	95	10.8	9.4	11	13	53
Oakland	57	11.4	9.9	8	5	93
Oklahoma City	22			3	0	
Omaha	48	11.6	12.5	5	3	53
Philadelphia	542	14.1	13.7	56	47	75
Pittsburgh	148	12.1	13.2	19	21	63
Portland, Oreg	68			3	8	30
Providence	61	11.6	12.5	6	10	50
Richmond	61	16.8	16.8	6	4	75
White	39			3	4	58
Colored	22	(5)		3	0	104
Rochester	68	11.0	13.2	7	5	55
St. Louis	217	13.6	14.4	22	15	
St. Paul	44	9.3	13.4	2	4	18
Salt Lake City [4]	33	12.9	12.3	5	0	76
San Antonio	50	12.7	12.4	6	9	
San Diego	46	21.8	10.8	2	1	42
San Francisco	154	14.2	13.5	6	11	30
Schenectady	18	10.1	12.4	3	2	86
Seattle	73			4	8	39
Somerville	20	10.4	11.6	1	3	28
Spokane	28	13.4	12.9	7	1	162
Springfield, Mass	37	13.3	[illegible].3	6	6	92
Syracuse	45	12.7	14.3	4	3	51
Tacoma	24	11.8	11.5	4	2	95
Toldeo	74	13.1	10.4	8	7	77
Trenton	27	10.5	12.2	3	4	51
Utica	32	16.2	13.3	3	0	68
Washington, D. C	116	11.5	16.6	9	6	52
White	88			7	5	58
Colored	28	(5)		2	1	36
Waterbury	20			1	4	24
Wilmington, Del	22	9.3	9.8	1	0	22
Worcester	46	12.4	18.0	4	6	48
Yonkers	22	9.9	12.8	3	5	68
Youngstown	31	9.8	9.8	5	4	63

[1] Annual rate per 1,000 population
[2] Deaths under 1 year per 1,000 births Cities left blank are not in registration area for births
[3] Data for 62 cities
[4] Deaths for week ended Friday, Dec. 24, 1926
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population Atlanta, 31, Baltimore, 15; Birmingham, 39, Dallas, 15, Fort Worth, 14, Houston, 25, Indianapolis, 11; Kansas City, Kans, 14, Louisville, 17, Memphis, 38, Nashville, [illegible]; New Orleans, 26, Richmond, 32, and Washington, D. C., 25.

DEATHS DURING WEEK ENDED JANUARY 1, 1927

Summary of information received by telegraph from industrial insurance companies for week ended January 1, 1927 and corresponding week of 1926. (From the Weekly Health Index, January 7, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 1, 1927	Corresponding week, 1926
Policies in force	66, 378, 884	62, 530, 137
Number of death claims	13, 103	11, 655
Death claims per 1,000 policies in force, annual rate	10. 3	9. 7

Deaths from all causes in certain large cities of the United States during the week ended January 1, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, January 7, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 1, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 1, 1927 [2]
	Total deaths	Death rate [1]		Week ended Jan. 1, 1927	Corresponding week 1926	
Total (65 cities)	7, 829	14. 2	14. 5	804	820	[3] 68
Akron	42			6	8	65
Albany [4]	41	18 0	19. 0	4	7	83
Atlanta	73			8	12	
White	42			5	6	
Colored	31	(5)		3	6	
Baltimore [4]	275	17. 7	16. 6	33	27	101
White	198			21	20	79
Colored	77	(5)		12	7	191
Birmingham	85	21. 0	17. 7	12	10	
White	38			7	3	
Colored	47	(5)		5	7	
Boston	255	16. 9	18. 3	30	25	84
Bridgeport	36			4	5	68
Buffalo	127	12. 2	13. 3	11	16	46
Cambridge	34	14. 5	11. 3	4	1	71
Camden	29	11. 5	15. 8	2	1	34
Canton	27	12. 8	14. 7	3	6	66
Chicago [4]	761	13. 0	13. 0	73	96	64
Cincinnati	140	17. 8	16. 4	13	7	81
Cleveland	205	11. 1	11. 5	22	19	57
Columbus	87	15. 9	16. 6	7	10	65
Dallas	51	13. 1	15. 3	9	12	
White	42			8	9	
Colored	9	(5)		1	3	
Dayton	43	12. 7	12. 7	5	7	82
Denver	87	15. 9	16. 9	9	11	
Des Moines	36	12. 9	9. 2	7	0	117
Detroit	311	12. 6	13. 7	62	46	101
Duluth	34	13. 7	10. 9	2	0	46
El Paso	27	12. 9	15. 4	3	2	
Erie	38			4	3	78
Fall River [4]	31	12. 3	19. 0	12	7	188
Flint	24	9. 2	8. 8	4	1	68
Fort Worth	36	11. 8	10. 8	2	2	
White	25			0	2	
Colored	11	(5)		2	0	
Grand Rapids	35	11. 7	11. 5	5	6	72
Houston	71			5	7	
White	46			4	4	
Colored	25	(5)		1	3	
Indianapolis	106	15. 1	15. 8	6	4	45
White	92			5	1	44
Colored	14	(5)		1	3	57
Jersey City	74	12. 1	14. 5	11	21	83
Kansas City, Kans	24	10. 7	15. 7	5	6	97
White	19			4	2	89
Colored	5	(5)		1	4	152
Kansas City, Mo	112	15. 6	16. 5	11	11	
Los Angeles	327			23	21	64

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 1, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Jan. 1, 1927: Total deaths	Week ended Jan. 1, 1927: Death rate [1]	Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year: Week ended Jan. 1, 1927	Deaths under 1 year: Corresponding week 1926	Infant mortality rate, week ended Jan. 1, 1927 [2]
Louisville	102	17.1	17.8	10	10	85
White	76			7	9	68
Colored	26	(5)		3	1	210
Lowell	29			3	4	58
Lynn	33	16.5	15.7	4	6	106
Memphis	68	20.0	16.1	9	8	
White	32			2	4	
Colored	36	(5)		7	4	
Milwaukee	122	12.3	11.6	14	24	66
Minneapolis	89	10.7	11.9	7	12	39
Nashville	41	15.6	23.4	4	7	
New Bedford	26			4	5	69
New Haven	49	14.0	14.6	3	3	41
New Orleans	144	17.9	22.2	7	14	
White	91			2	3	
Colored	53	(5)		5	11	
New York	1,602	14.1	13.2	160	153	65
Bronx Borough	212	12.3	10.8	17	15	57
Brooklyn Borough	569	13.2	11.6	58	56	59
Manhattan Borough	625	17.4	17.1	64	61	71
Queens Borough	156	10.6	10.1	17	17	77
Richmond Borough	40	14.6	15.1	4	4	70
Newark, N. J	105	11.9	16.7	15	22	72
Oakland	84	16.8	15.2	3	6	35
Oklahoma City	23			2	1	
Omaha	49	11.8	15.7	3	15	32
Paterson	29	10.6	17.3	0	4	0
Philadelphia	570	14.8	14.6	51	44	68
Pittsburgh	201	16.5	14.2	17	19	56
Portland, Oreg	83			6	2	60
Providence	49	9.3	17.9	4	10	33
Richmond	66	18.2	15.1	4	6	50
White	37			2	0	39
Colored	29	(5)		2	6	69
Rochester	74	12.0	12.5	5	7	40
St. Louis	260	16.9	16.6	22	18	
St. Paul	63	13.2	12.5	7	2	62
Salt Lake City [4]	37	14.5	16.7	3	2	40
San Antonio	59	15.0	20.3	8	10	
San Diego	46	21.8	26.6	4	6	85
San Francisco	173	15.9	15.4	6	2	36
Schenectady	18	10.1	13.5	3	0	86
Seattle	93			6	4	58
Somerville	29	15.1	9.5	4	3	113
Spokane	22	10.5	19.6	4	1	93
Springfield, Mass	43	15.5	14.3	4	3	62
Syracuse	49	13.8	12.3	4	3	51
Tacoma	25	12.3	16.0	1	2	24
Toledo	67	11.8	14.9	3	7	29
Trenton	35	13.6	16.2	5	3	85
Utica	34	17.2	10.8	3	1	68
Washington, D. C	138	13.6	17.2	11	15	63
White	89			3	6	25
Colored	49	(5)		8	9	146
Waterbury	24			4	5	94
Wilmington, Del	31	13.0	16.7	4	3	89
Worcester	45	12.2	16.7	6	2	72
Yonkers	26	11.7	11.9	4	3	90
Youngstown	46	14.5	11.1	11	3	139

1 Annual rate per 1,000 population.
2 Deaths under 1 year per 1,000 births. Cities left blank are not in registration area for births.
3 Data for 63 cities.
4 Deaths for week ended Friday, December 31, 1926.
5 In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended January 8, 1927

ALABAMA	Cases
Cerebrospinal meningitis	1
Chicken pox	116
Dengue	2
Diphtheria	52
Influenza	74
Lethargic encephalitis	1
Malaria	13
Measles	34
Mumps	31
Ophthalmia neonatorum	1
Pellagra	3
Pneumonia	64
Scarlet fever	20
Smallpox	27
Trachoma	1
Tuberculosis	31
Typhoid fever	8
Whooping cough	21
ARIZONA	
Chicken pox	3
Diphtheria	4
Measles	10
Mumps	1
Scarlet fever	9
Trachoma	1
Tuberculosis	36
ARKANSAS	
Chicken pox	31
Diphtheria	7
Hookworm disease	3
Influenza	109
Malaria	18
Measles	1
Mumps	11
Paratyphoid fever	1

ARKANSAS—continued	Cases
Pellagra	7
Scarlet fever	13
Smallpox	6
Tuberculosis	6
Typhoid fever	7
Whooping cough	41
CALIFORNIA	
Cerebrospinal meningitis:	
Los Angeles	1
Pittsburg	1
San Diego	3
Chicken pox	416
Diphtheria	178
Influenza	37
Leprosy:	
Berkeley	1
Los Angeles	1
Lethargic encephalitis—Bakersfield	1
Measles	1,115
Mumps	128
Poliomyelitis:	
Los Angeles	1
San Diego	1
Scarlet fever	220
Smallpox	20
Tuberculosis	149
Typhoid fever	24
Whooping cough	85
COLORADO	
Chicken pox	21
Diphtheria	12
Influenza	1
Measles	44
Mumps	3

COLORADO—continued

	Cases
Pneumonia	10
Scarlet fever	17
Smallpox	3
Tuberculosis	16
Typhoid fever	3

CONNECTICUT

Cerebrospinal meningitis	1
Chicken pox	135
Diphtheria	31
German measles	3
Influenza	12
Lethargic encephalitis	3
Measles	26
Mumps	27
Paratyphoid fever	1
Pneumonia (broncho)	44
Pneumonia (lobar)	58
Scarlet fever	93
Septic sore throat	3
Tuberculosis (all forms)	31
Typhoid fever	3
Whooping cough	62

DELAWARE

Anthrax	2
Chicken pox	4
Diphtheria	1
Measles	1
Scarlet fever	39
Tuberculosis	6
Whooping cough	7

FLORIDA

Cerebrospinal meningitis	2
Chicken pox	37
Diphtheria	42
Influenza	1
Malaria	9
Measles	15
Mumps	2
Pneumonia	20
Scarlet fever	19
Smallpox	37
Tuberculosis	9
Typhoid fever	4
Whooping cough	3

GEORGIA

Chicken pox	47
Conjunctivitis (infectious)	1
Diphtheria	31
Dysentery	1
Hookworm disease	1
Influenza	101
Lethargic encephalitis	1
Malaria	15
Measles	54
Mumps	18
Pellagra	3
Pneumonia	49
Scarlet fever	31
Septic sore throat	3
Smallpox	61
Tetanus	2
Tuberculosis	18
Typhoid fever	4

GEORGIA—continued

	Cases
Typhus fever	2
Whooping cough	49

IDAHO

Diphtheria	2
Measles	64
Mumps	10
Scarlet fever	35
Smallpox	3
Typhoid fever	1
Whooping cough	1

ILLINOIS

Cerebrospinal meningitis—Cook County	4
Chicken pox	582
Diphtheria	179
Influenza	46
Lethargic encephalitis:	
Saline County	1
Tazewell County	1
Measles	1,414
Mumps	234
Pneumonia	162
Poliomyelitis—Sangamon County	1
Scarlet fever	384
Smallpox:	
Clay County	16
Cumberland	11
Scattering	16
Tuberculosis	507
Typhoid fever	21
Whooping cough	188

INDIANA

Chicken pox	217
Diphtheria	92
Influenza	79
Measles	186
Pneumonia	17
Poliomyelitis	1
Scarlet fever	255
Smallpox	180
Tuberculosis	27
Typhoid fever	4
Whooping cough	73

IOWA

Cerebrospinal meningitis—Sanborn	1
Chicken pox	53
Diphtheria	54
German measles	1
Measles	228
Mumps	6
Scarlet fever	59
Smallpox	5
Tuberculosis	2
Whooping cough	4

KANSAS

Cerebrospinal meningitis:	
Kansas City	1
McCune	1
Topeka	1
Chicken pox	265
Diphtheria	21
German measles	4
Influenza	12

KANSAS—continued

	Cases
Measles	165
Mumps	18
Pneumonia	72
Scarlet fever	201
Smallpox:	
Topeka	10
Scattering	19
Tuberculosis	37
Typhoid fever	6
Whooping cough	50

LOUISIANA

Cerebrospinal meningitis	1
Diphtheria	27
Influenza	27
Lethargic encephalitis	1
Malaria	5
Pellagra	1
Pneumonia	29
Scarlet fever	14
Smallpox	7
Tuberculosis	15
Typhoid fever	15

MAINE

Chicken pox	73
Diphtheria	3
German measles	18
Influenza	24
Measles	202
Mumps	8
Pneumonia	24
Poliomyelitis	1
Scarlet fever	34
Vincent's angina	3
Whooping cough	63

MARYLAND [1]

Cerebrospinal meningitis	1
Chicken pox	154
Diphtheria	65
German measles	3
Influenza	61
Measles	34
Mumps	16
Pneumonia (broncho)	48
Pneumonia (lobar)	56
Pneumonia (undefined)	1
Scabies	1
Scarlet fever	52
Septic sore throat	1
Tuberculosis	36
Typhoid fever	4
Vincent's angina	3
Whooping cough	141

MASSACHUSETTS

Cerebrospinal meningitis	2
Chicken pox	515
Conjunctivitis (suppurative)	9
Diphtheria	131
German measles	18
Influenza	15
Lethargic encephalitis	1
Measles	176

[1] Week ended Friday.

MASSACHUSETTS—continued

	Cases
Mumps	284
Ophthalmia neonatorum	49
Pneumonia (lobar)	160
Poliomyelitis	2
Scarlet fever	515
Septic sore throat	5
Trachoma	1
Tuberculosis (pulmonary)	95
Tuberculosis (other forms)	22
Typhoid fever	12
Whooping cough	149

MICHIGAN

Diphtheria	112
Measles	109
Pneumonia	171
Scarlet fever	332
Smallpox	41
Tuberculosis	266
Typhoid fever	7
Whooping cough	138

MINNESOTA

Cerebrospinal meningitis	1
Chicken pox	289
Diphtheria	55
Lethargic encephalitis	1
Measles	147
Pneumonia	1
Scarlet fever	256
Smallpox	4
Tuberculosis	56
Typhoid fever	6
Whooping cough	24

MISSISSIPPI

Cerebrospinal meningitis	1
Diphtheria	37
Scarlet fever	21
Smallpox	9
Typhoid fever	10

MISSOURI

Cerebrospinal meningitis	1
Chicken pox	67
Diphtheria	58
Influenza	51
Malaria	12
Measles	247
Mumps	16
Ophthalmia neonatorum	1
Rabies (in animals)	4
Scarlet fever	101
Smallpox	4
Trachoma	1
Tuberculosis	41
Typhoid fever	7
Whooping cough	27

MONTANA

Cerebrospinal meningitis	1
Chicken pox	32
Diphtheria	7
Influenza	1
Measles	60

MONTANA—continued

	Cases
Mumps	21
Scarlet fever	138
Smallpox	5
Tuberculosis	3
Typhoid fever [2]	2
Whooping cough [2]	1

NEBRASKA

	Cases
Chicken pox	78
Diphtheria	6
German measles	2
Influenza	1
Lethargic encephalitis	1
Measles	74
Mumps	32
Pneumonia	4
Poliomyelitis	1
Scarlet fever	51
Septic sore throat	7
Smallpox	46
Tuberculosis	1
Typhoid fever	4
Whooping cough	11

NEW JERSEY

	Cases
Cerebrospinal meningitis	2
Chicken pox	304
Diphtheria	151
Influenza	23
Measles	27
Paratyphoid fever	1
Pneumonia	201
Poliomyelitis	1
Scarlet fever	285
Typhoid fever	6
Whooping cough	194

NEW MEXICO

	Cases
Chicken pox	23
Conjunctivitis	6
Diphtheria	4
German measles	4
Measles	15
Mumps	2
Pneumonia	23
Poliomyelitis	1
Rabies (in animals)	1
Scarlet fever	23
Smallpox	1
Trachoma	1
Tuberculosis	11
Typhoid fever	2
Whooping cough	23

NEW YORK

(Exclusive of New York City)

	Cases
Botulism	1
Chicken pox	732
Diphtheria	95
Dysentery	3
German measles	99
Lethargic encephalitis	1
Measles	1,002
Mumps	255

[2] Delayed report.

NEW YORK—continued

	Cases
Pneumonia	413
Poliomyelitis	3
Scarlet fever	265
Septic sore throat	6
Smallpox	7
Tetanus	1
Trachoma	1
Typhoid fever	39
Vincent's angina	17
Whooping cough	319

NORTH CAROLINA

	Cases
Chicken pox	172
Diphtheria	64
German measles	6
Measles	161
Scarlet fever	78
Septic sore throat	1
Smallpox	77
Typhoid fever	8
Whooping cough	327

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Chicken pox	47
Diphtheria	31
Influenza	265
Malaria	11
Measles	23
Pneumonia	91
Scarlet fever	33
Smallpox	10
Typhoid fever	9

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	62
Diphtheria	30
Influenza	30
Measles	44
Mumps	29
Pneumonia	[3] 8
Scarlet fever	54
Smallpox:	
Jackson County	12
Klamath County	14
Scattering	8
Tuberculosis	[3] 3
Typhoid fever	3
Whooping cough	3

PENNSYLVANIA

	Cases
Anthrax—Philadelphia	1
Cerebrospinal meningitis—Philadelphia	1
Chicken pox	704
Diphtheria	231
German measles	26
Impetigo contagiosa	2
Lethargic encephalitis—Philadelphia	1
Malaria	8
Measles	795
Mumps	138
Ophthalmia—Philadelphia	8

[3] Deaths.

PENNSYLVANIA—continued

	Cases
Pneumonia	95
Rabies—Sharpsburg	1
Scabies	3
Scarlet fever	566
Trachoma—Philadelphia	1
Tuberculosis	138
Typhoid fever	34
Whooping cough	309

SOUTH CAROLINA

Chicken pox	113
Diphtheria	34
Hookworm disease	16
Influenza	779
Malaria	128
Measles	83
Pellagra	24
Poliomyelitis	2
Scarlet fever	11
Smallpox	9
Tuberculosis	43
Typhoid fever	18
Whooping cough	24

SOUTH DAKOTA

Chicken pox	23
Diphtheria	9
Influenza	2
Measles	102
Mumps	1
Pneumonia	16
Poliomyelitis	1
Scarlet fever	18
Smallpox	6
Tuberculosis	1
Typhoid fever	8
Whooping cough	10

TENNESSEE

Chicken pox	89
Diphtheria	25
Influenza	57
Malaria	7
Measles	98
Mumps	3
Ophthalmia neonatorum	1
Pellagra	1
Pneumonia	46
Rabies	1
Scarlet fever	71
Smallpox	6
Tuberculosis	23
Tularaemia	1
Typhoid fever	26
Whooping cough	106

TEXAS

Chicken pox	6
Diphtheria	52
Influenza	42
Measles	11
Pneumonia	24
Scarlet fever	50
Smallpox	9
Trachoma	1
Tuberculosis	17
Typhoid fever	9

TEXAS—continued

	Cases
Typhus fever	3
Whooping cough	1

UTAH

Chicken pox	76
Diphtheria	3
Measles	688
Mumps	35
Pneumonia	10
Scarlet fever	13
Smallpox	4
Whooping cough	1

VERMONT

Chicken pox	32
Diphtheria	2
Measles	90
Mumps	32
Pneumonia	4
Scarlet fever	16
Whooping cough	32

WASHINGTON

Cerebrospinal meningitis	7
Chicken pox	154
Diphtheria	29
German measles	20
Measles	392
Mumps	68
Pneumonia	1
Poliomyelitis	1
Scarlet fever	172
Smallpox	81
Tuberculosis	32
Typhoid fever	8
Whooping cough	18

WEST VIRGINIA

Chicken pox	80
Diphtheria	27
German measles	3
Influenza	44
Measles	86
Scarlet fever	38
Smallpox	2
Tuberculosis	10
Typhoid fever	6
Whooping cough	67

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	3
Chicken pox	68
Diphtheria	20
German measles	2
Influenza	1
Measles	72
Mumps	33
Pneumonia	20
Scarlet fever	33
Tuberculosis	6
Whooping cough	54
Scattering:	
Chicken pox	136
Diphtheria	22

WISCONSIN—continued

Scattering—Continued.	Cases
German measles	8
Influenza	37
Measles	746
Mumps	55
Pneumonia	24
Scarlet fever	149
Smallpox	13
Tuberculosis	12
Typhoid fever	7
Whooping cough	80

WYOMING

	Cases
Cerebrospinal meningitis - Hot Springs County	1
Chicken pox	20
German measles	5
Influenza	9
Measles	71
Paratyphoid fever	3
Pneumonia	3
Scarlet fever	36
Septic sore throat	1
Typhoid fever	1
Whooping cough	1

Reports for Week Ended January 1, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	43
Diphtheria	20
Measles	1
Pneumonia	40
Scarlet fever	23
Tuberculosis	20
Typhoid fever	5
Whooping cough	6

NORTH DAKOTA

Chicken pox	5
Diphtheria	2
German measles	15
Measles	98
Mumps	1
Pneumonia	4
Scarlet fever	29
Trachoma	1
Tuberculosis	2
Whooping cough	5

PENNSYLVANIA

	Cases
Anthrax:	
Bridgeport	1
Norristown	1
Philadelphia	1
Chicken pox	657
Diphtheria	187
German measles	11
Impetigo contagiosa	2
Lethargic encephalitis—Philadelphia	1
Measles	523
Mumps	123
Ophthalmia—Scranton	1
Pneumonia	40
Scabies	9
Scarlet fever	524
Trachoma—Philadelphia	1
Tuberculosis	57
Typhoid fever	31
Whooping cough	250

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1926										
Florida		55	83	59	47		2	27	51	97
Pennsylvania	5	403		0	605	0	16	378	0	22[illegible]
September, 1926										
Pennsylvania	4	525		3		0	19	542		38[illegible]
October, 1926										
Pennsylvania	6	774		1		2	31	990		35[illegible]
November, 1926										
Florida		206	7	14	18		0	44	35	2[illegible]
Rhode Island	0	50	35		12		1	90	0	1
South Dakota	1	10	1		209		0	275	32	1
Virginia	2	651	1,649	106	240	11	7	501	10	12
West Virginia	3	241	97		89		1	266	13	12

October, 1926

	Cases
Anthrax—Pennsylvania	2
Lethargic encephalitis—Pennsylvania	2

November, 1926

	Cases
Chicken pox:	
Florida	13
Rhode Island	40
South Dakota	119
Virginia	431
West Virginia	311
Dengue—Florida	1
Dysentery:	
Florida	5
Virginia	50
German measles—Rhode Island	5
Hookworm disease:	
Florida	169
Virginia	9
Lethargic encephalitis—Florida	2
Mumps:	
Florida	2
Rhode Island	4
South Dakota	9
Ophthalmia neonatorum—Rhode Island	4
Paratyphoid fever—Florida	1
Septic sore throat—Rhode Island	1
Tetanus:	4
Florida	4
South Dakota	1
Trachoma—South Dakota	4
Trichinosis—South Dakota	1
Typhus fever—Florida	3
Whooping cough:	
Florida	25
Rhode Island	17
South Dakota	53
Virginia	962
West Virginia	242

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended December 25, 1926, 42 States reported 1,678 cases of diphtheria. For the week ended December 26, 1925, the same States reported 1,372 cases of this disease. Ninety-four cities, situated in all parts of the country and having an aggregate population of more than 29,300,000, reported 933 cases of diphtheria for the week ended December 25, 1926. Last year for the corresponding week they reported 688 cases. The estimated expectancy for these cities was 1,237 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-eight States reported 3,968 cases of measles for the week ended December 25, 1926, and 3,949 cases of this disease for the week ended December 26, 1925. Ninety-four cities reported 1,172 cases of measles for the week this year and 2,380 cases last year.

Poliomyelitis.—The health officers of 42 States reported 12 cases of poliomyelitis for the week ended December 25, 1926. The same States reported 12 cases for the week ended December 26, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty-two States—this year, 3,291 cases; last year, 2,887 cases; 94 cities—this year, 1,438 cases; last year, 1,146 cases; estimated expectancy, 1,085 cases.

Smallpox.—For the week ended December 25, 1926, 42 States reported 599 cases of smallpox. Last year for the corresponding week they reported 349 cases. Ninety-four cities reported smallpox for the week as follows: 1926, 83 cases; 1925, 100 cases; estimated expectancy, 71 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—Two hundred and ninety-one cases of typhoid fever were reported for the week ended December 25, 1926, by 42 States. For the corresponding week of 1925 the same States re-

ported 334 cases of this disease. Ninety-four cities reported 58 cases of typhoid fever for the week this year and 51 cases for the corresponding week last year. The estimated expectancy for these cities was 59 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 88 cities, with a population of more than 28,600,000, as follows: 1926, 845 deaths; 1925, 799 deaths.

City reports for week ended December 25, 1926

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	18	2	0	0	0	0	0	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	34	0	0
Manchester	83,097	0	4	1	0	0	0	0	4
Vermont:									
Barre	10,008	0	0	0	0	0	17	0	1
Burlington	24,089	0	0	0	0	0	0	0	0
Massachusetts:									
Boston	779,620	84	67	33	5	0	15	42	28
Fall River	128,093	5	5	5	2	2	1	11	2
Springfield	142,065	5	4	3	0	0	1	1	1
Worcester	190,757	17	5	4	0	0	0	4	7
Rhode Island:									
Pawtucket	69,760	6	2	1	0	0	0	0	2
Providence	267,918	0	10	8	0	0	2	0	7
Connecticut:									
Bridgeport	(1)	3	9	10	1	1	1	1	4
Hartford	160,197	5	9	2	0	0	0	0	2
New Haven	178,927	16	4	2	0	0	0	2	6
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	31	25	19		1	2	5	14
New York	5,873,356	198	233	150	50	15	9	111	187
Rochester	316,786	6	10	5		2	3	0	8
Syracuse	182,003	23	10	2		0	9	1	3
New Jersey:									
Camden	128,642	2	5	25	3	0	6	0	7
Newark	452,513	18	20	10	8	0	0	18	18
Trenton	132,020	1	8	1	1	0	6	0	5
Pennsylvania:									
Philadelphia	1,979,364	136	82	52		9	5	20	69
Pittsburgh	631,563	37	28	16	1	2	10	1	20
Reading	112,707	9	6	0		0	0	4	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	20	16	6	0	2	0	16	16
Cleveland	936,485	121	42	78	1	2	2	10	20
Columbus	279,836	19	6	4	0	2	0	0	4
Toledo	287,380	39	15	1	0	5	1	0	6

[1] No estimate made.

City reports for week ended December 25, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Indiana:									
Fort Wayne	97,846	6	5	4	0	0	17	0	3
Indianapolis	358,819	44	14	15	0	1	1	0	12
South Bend	80,091	2	1	0	0	0	10	0	2
Terre Haute	71,071		3						
Illinois:									
Chicago	2,995,239	139	139	72	13	5	214	31	58
Peoria	81,564	6	2	1	0	0	50	3	4
Springfield	63,923	11	2	3	0	0	61	0	2
Michigan:									
Detroit	1,245,824	62	70	52	1	2	0	10	23
Flint	130,316	11	11	0	0	0	0	0	0
Grand Rapids	153,698	11	6	0	0	0	1	0	3
Wisconsin:									
Kenosha	50,891	18	1	0	0	0	18	10	1
Madison	46,385	31	1	3	0	0	7	2	3
Milwaukee	509,192	60	25	28	0	0	37	21	13
Racine	67,707	32	3	2	0	0	1	4	0
Superior	39,671		1						
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	5	2	1	0	0	12	0	2
Minneapolis	425,435	198	20	9	0	1	0	0	9
St. Paul	246,001	20	19	7	0	1	3	0	7
Iowa:									
Des Moines	141,441	0	5	0	0		0	0	3
Sioux City	76,411	9	3	0	0		2	0	
Waterloo	36,771	28	1	0	0		1	0	
Missouri:									
Kansas City	367,481	17	13	8	2	2	8	2	14
St. Joseph	78,342	0	4	0	0	0	0	0	2
St. Louis	821,543	33	55	28	0	1	3	2	
North Dakota:									
Fargo	26,403	2	0	0	0	0	2	0	0
Grand Forks	14,811	0	0	0	0		8	0	
South Dakota:									
Aberdeen	15,036	9	0	0	0		0	0	
Sioux Falls	30,127	1	0	0	0		1	0	
Nebraska:									
Lincoln	60,941	4	2	0	0	0	1	0	3
Omaha	211,768	11	5	3	0	0	6	1	5
Kansas:									
Topeka	55,411	18	2	0	0	0	1	0	3
Wichita	88,367	23	6	0	0	0	0	0	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	4	3	0	0	0	0	0	3
Maryland:									
Baltimore	796,296	125	32	46	23	4	1	5	21
Cumberland	33,741	2	1	0	2	2	0	0	0
Frederick	12,035	1	0	0	0	0	1	0	0
District of Columbia:									
Washington	497,906	38	19	27	0	0	1	0	17
Virginia:									
Lynchburg	30,395		1						
Norfolk	(1)		3						
Richmond	186,403	1	9	6	0	3	16	0	6
Roanoke	58,208	1	3	4	0	3	1	0	1
West Virginia:									
Charleston	49,019	14	2	1	0	0	1	0	1
Wheeling	56,208	11	2	0	0	0	0	0	1
North Carolina:									
Raleigh	30,371	1	1	0	0	0	0	0	2
Wilmington	37,061	2	0	0	0	0	0	0	2
Winston-Salem	69,031	7	1	3	0	0	0	0	2
South Carolina:									
Charleston	73,125	0	2	1	12	0	0	0	0
Columbia	41,225	3	1	0	0	0	0	0	0
Greenville	27,311		1						

[1] No estimate made.

City reports for week ended December 25, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
SOUTH ATLANTIC—con.									
Georgia:									
Atlanta	(1)	1	4	6	5	1	2	0	7
Brunswick	16, 809	1	0	0	0	1	0	1	0
Savannah	93, 134	0	1	2	1	0	0	0	4
Florida:									
Miami	69, 754	9		0	2	0	1	0	3
St. Petersburg	26, 847		1			0			2
Tampa	94, 743	1	1	8	0	2	5	0	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58, 309	0	2	3	0	0	0	0	3
Louisville	305, 935		10						
Tennessee:									
Memphis	174, 533	20	8	2	0	1	2	0	5
Nashville	136, 220	0	3	2	0	2	1	0	2
Alabama:									
Birmingham	205, 670	19	4	12	5	3	3	0	0
Mobile	65, 955	2	1	0	0	1	0	0	3
Montgomery	46, 481	0	0	7	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31, 643	3	2	0	0		0	2	
Little Rock	74, 216	0	2	2	0		0	0	
Louisiana:									
New Orleans	414, 493		13						
Shreveport	57, 857	4	1	1	0	0	0	1	1
Oklahoma:									
Oklahoma City	(1)	0	2	2	0	0	0	0	5
Texas:									
Dallas	194, 450	3	11	20	2	2	1	0	2
Galveston	48, 375	0	2	0	0	0	0	0	1
Houston	164, 954	4	4	3	0	1	0	0	3
San Antonio	198, 069	0	3	7	0	1	0	0	12
MOUNTAIN									
Montana:									
Billings	17, 971	2	0	0	0	0	25	0	2
Great Falls	29, 883	5	1	0	0	0	2	0	0
Helena	12, 037	0	0	0	0	0	0	0	0
Missoula	12, 668	1	0	0	0	0	0	7	1
Idaho:									
Boise	23, 042	1	1	1	0	0	3	0	0
Colorado:									
Denver	280, 911	10	12	8		3	37	0	8
Pueblo	43, 787	2	4	0	0	0	0	0	2
New Mexico:									
Albuquerque	21, 000	11	0	0	0	0	0	1	6
Arizona:									
Phoenix	38, 669	0	1	0	0	1	0	0	1
Utah:									
Salt Lake City	130, 948	26	3	6	0	0	238	1	5
Nevada:									
Reno	12, 665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	33	7	2	0		4	23	
Spokane	108, 897	26	5	5	0		189	0	
Tacoma	104, 455	18	3	3	0	1	0	1	4
Oregon:									
Portland	282, 383	8	10	6	0	0	3	2	7
California:									
Los Angeles	(1)	35	38	38	21	0	20	2	29
Sacramento	72, 260	2	2	1	0	0	34	2	3
San Francisco	557, 530	11	21	35	1	0	81	10	6

[1] No estimate made.

City reports for week ended December 25, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	1	0	0	0	0	0	0	0	5	22
New Hampshire:											
Concord	0	2	0	0	0	0	0	0	0	0	10
Manchester	1	4	0	0	0	0	0	0	0	0	15
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	4	1
Burlington	1	0	0	0	0	0	0	0	0	6	13
Massachusetts:											
Boston	47	54	0	0	0	11	1	17	1	21	258
Fall River	3	1	0	0	0	4	1	0	0	4	37
Springfield	8	5	0	0	0	2	0	0	0	0	35
Worcester	11	9	0	0	0	1	0	0	0	12	-------
Rhode Island:											
Pawtucket	1	2	0	0	0	0	0	0	1	0	14
Providence	7	2	0	0	0	1	1	0	0	1	61
Connecticut:											
Bridgeport	7	16	0	0	0	3	0	0	0	0	42
Hartford	8	11	0	0	0	1	0	0	0	4	30
New Haven	9	2	0	0	0	3	1	0	1	0	46
MIDDLE ATLANTIC											
New York:											
Buffalo	24	4	0	0	0	8	2	0	0	4	119
New York	169	235	0	0	0	[1] 100	14	6	1	53	1, 451
Rochester	13	6	0	0	0	6	2	0	1	7	64
Syracuse	12	8	0	0	0	0	0	1	0	7	45
New Jersey:											
Camden	3	8	0	0	0	1	0	1	0	2	41
Newark	17	37	0	0	0	14	1	0	0	11	102
Trenton	3	0	0	0	0	4	1	0	0	3	27
Pennsylvania:											
Philadelphia	68	101	0	0	0	25	4	1	0	30	542
Pittsburgh	34	24	0	0	0	5	1	1	0	4	148
Reading	1	3	0	0	0	1	1	0	0	4	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	28	1	0	0	6	0	0	0	0	110
Cleveland	32	32	1	1	0	14	2	0	0	15	192
Columbus	11	19	0	2	0	7	0	0	0	5	81
Toledo	13	9	1	1	0	7	1	0	0	15	74
Indiana:											
Fort Wayne	3	8	0	0	0	1	0	0	0	2	33
Indianapolis	10	17	6	16	0	4	0	0	1	8	94
South Bend	4	3	1	0	0	1	0	0	0	1	17
Terre Haute	3	------	0	------	------	------	0	------	------	------	------
Illinois:											
Chicago	120	112	1	1	0	52	7	0	0	54	647
Peoria	6	1	0	0	0	1	0	0	0	3	21
Springfield	2	1	0	0	0	0	0	1	1	0	20
Michigan:											
Detroit	86	85	3	0	0	26	3	1	1	35	293
Flint	7	17	0	3	0	0	0	1	0	0	17
Grand Rapids	9	8	1	0	0	0	1	2	0	1	32
Wisconsin:											
Kenosha	2	4	1	0	0	1	0	0	0	8	5
Madison	3	3	0	0	0	0	0	1	0	0	10
Milwaukee	26	25	2	0	0	8	1	0	1	53	105
Racine	5	7	1	0	0	0	0	0	0	1	12
Superior	2	------	1	------	------	------	0	------	------	------	------
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	5	1	0	0	2	1	1	0	0	17
Minneapolis	47	41	6	0	0	3	0	0	0	0	92
St. Paul	22	27	10	1	0	4	0	1	0	5	44

[1] Pulmonary tuberculosis only.

City reports for week ended December 25, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Des Moines	6	1	1	1	------	1	0	0	------	0	------
Sioux City	2	5	0	1	------	------	0	0	------	1	------
Waterloo	3	0	0	0	------	------	0	0	------	1	------
Missouri:											
Kansas City	12	27	1	2	0	3	0	0	0	2	94
St. Joseph	2	2	0	0	0	0	0	0	0	0	27
St. Louis	34	37	1	0	0	12	2	3	1	15	217
North Dakota:											
Fargo	2	11	0	0	0	0	0	0	0	0	6
Grand Forks	1	4	0	0	------	------	0	0	------	0	------
South Dakota:											
Aberdeen	1	3	0	0	------	------	0	0	------	1	------
Sioux Falls	1	1	0	0	------	------	0	0	------	0	------
Nebraska:											
Lincoln	2	7	0	0	0	0	0	1	0	0	13
Omaha	5	22	5	0	0	1	0	0	0	0	48
Kansas:											
Topeka	2	2	0	10	0	0	0	0	0	3	10
Wichita	4	5	0	0	0	1	0	0	0	3	21
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	8	0	0	0	1	0	0	0	1	22
Maryland:											
Baltimore	26	16	0	0	0	17	3	4	2	46	232
Cumberland	1	1	0	0	0	0	0	0	1	5	15
Frederick	0	2	0	0	0	0	0	0	0	4	5
District of Columbia:											
Washington	22	14	0	0	0	8	3	1	0	5	116
Virginia:											
Lynchburg	0	------	0	------	------	------	0	------	------	------	------
Norfolk	2	------	0	------	------	------	0	------	------	------	------
Richmond	6	8	0	0	0	5	1	1	0	1	67
Roanoke	1	1	0	4	0	1	1	0	0	0	16
West Virginia:											
Charleston	1	2	0	0	0	0	0	0	1	0	24
Wheeling	2	2	0	0	0	0	0	0	0	0	15
North Carolina:											
Raleigh	1	3	0	0	0	1	0	0	0	4	14
Wilmington	0	0	0	0	0	0	0	0	0	0	7
Winston-Salem	2	2	1	0	0	3	0	0	0	10	20
South Carolina:											
Charleston	0	0	0	0	0	1	0	1	1	0	17
Columbia	1	1	1	0	0	0	0	0	0	2	------
Greenville	0	------	1	------	------	------	0	------	------	------	------
Georgia:											
Atlanta	4	9	1	9	0	2	0	1	0	0	76
Brunswick	0	0	0	0	0	1	0	0	0	0	6
Savannah	1	4	0	1	0	4	0	0	0	0	33
Florida:											
Miami	------	0	------	0	0	1	------	1	1	4	30
St. Petersburg	0	------	0	------	0	1	0	------	0	------	14
Tampa	1	2	0	1	0	1	0	0	0	0	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	2	0	0	0	0	0	1	0	0	14
Louisville	5	------	0	------	------	------	1	------	------	------	------
Tennessee:											
Memphis	5	13	0	4	0	4	0	1	1	7	63
Nashville	2	14	0	0	0	6	0	1	0	5	43
Alabama:											
Birmingham	4	7	1	1	0	4	1	0	0	0	56
Mobile	1	0	0	0	0	0	0	0	0	0	18
Montgomery	1	1	1	2	0	0	0	0	0	0	12

City reports for week ended December 25, 1926—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	1	1	0			0	0		0	
Little Rock	2	1	1	0		1	0	0		0	
Louisiana:											
New Orleans	5		0				2				
Shreveport	0	1	1	0	0	2	0	0	0	0	22
Oklahoma:											
Oklahoma City	2	2	0	0	0	2	0	0	0	0	22
Texas:											
Dallas	3	11	0	5	0	4	0	0	0	0	41
Galveston	1	4	0	0	0	1	0	0	0	0	12
Houston	3	6	1	1	0	4	0	0	0	0	52
San Antonio	1	2	0	0	0	6	0	1	0	0	55
MOUNTAIN											
Montana:											
Billings	2	1	0	1	0	0	0	0	0	0	12
Great Falls	1	10	1	0	0	1	0	0	0	0	12
Helena	1	5	0	0	0	0	0	0	0	0	3
Missoula	0	13	0	0	0	0	0	0	0	0	3
Idaho:											
Boise	1	0	1	1	0	0	0	0	0	0	5
Colorado:											
Denver	10	76	3	0	0	12	0	0	0	1	71
Pueblo	2	0	0	0	0	1	0	0	0	0	11
New Mexico:											
Albuquerque	0	7	0	0	0	1	0	0	0	0	16
Arizona:											
Phoenix	2	0	0	0	0	10	0	0	1	0	34
Utah:											
Salt Lake City	3	2	1	0	0	1	0	0	0	2	33
Nevada:											
Reno	1	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	7	4	3	2			0	2		0	
Spokane	5	37	4	5			0	0		0	
Tacoma	3	1	2	7	0	0	0	0	0	1	24
Oregon:											
Portland	7	10	7	0	0	3	0	1	0	0	68
California:											
Los Angeles	18	55	4	0	0	22	2	1	1	3	251
Sacramento	2	2	1	0	0	0	0	0	0	0	9
San Francisco	11	14	1	2	0	6	1	5	0	6	

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	1	0	0	0	0	1	0
Connecticut:									
Bridgeport	0	0	1	0	0	0	0	0	0
Hartford	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	3	1	1	3	1	2	1	0	0
Pennsylvania:									
Philadelphia	1	1	1	0	0	0	0	0	0
Pittsburgh	0	0	0	1	0	0	0	0	0

City reports for week ended December 25, 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	3	1	0	0	0	0	0	0	0
Michigan:									
Detroit	1	0	1	1	0	0	0	1	0
Grand Rapids	0	0	0	0	0	0	0	1	0
Wisconsin:									
Milwaukee	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	1	
Missouri:									
Kansas City	0	0	0	0	1	1	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	1	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	3	3	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Oklahoma:									
Oklahoma City	0	0	0	1	1	0	0	0	0
Texas:									
Galveston	0	0	1	1	0	1	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Pueblo	1	0	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles	1	2	2	1	0	0	0	0	0

[1] Typhus fever: 1 case at Baltimore, Md.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended December 25, 1926, compared with those for a like period ended December 26, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 95 cities reporting deaths had more than 29,200,000 estimated population in 1925 and more than 29,730,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 21 to December 25, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926
101 cities	154	212	165	224	159	[2] 201	[3] 158	[4] 189	122	[5] 166
New England	101	132	120	173	103	163	132	161	89	161
Middle Atlantic	150	154	137	176	138	160	147	167	108	139
East North Central	155	257	164	267	158	223	154	[4] 217	150	[6] 185
West North Central	170	191	272	209	239	193	178	129	184	113
South Atlantic	207	284	207	242	192	239	192	218	94	[7] 213
East South Central	110	218	116	301	121	[2] 275	89	145	74	[8] 208
West South Central	172	301	264	318	176	267	[3] 241	258	128	[9] 217
Mountain	129	200	231	228	166	246	176	164	166	137
Pacific	157	305	122	270	191	240	177	253	88	226

MEASLES CASE RATES

101 cities	205	133	342	175	427	[2] 199	[3] 515	[4] 191	416	[5] 208
New England	798	57	1,526	102	1,953	165	2,082	229	1,579	168
Middle Atlantic	238	30	338	37	451	23	518	24	382	22
East North Central	118	131	243	145	293	218	479	[4] 244	537	[6] 243
West North Central	29	109	18	113	25	129	35	109	70	77
South Atlantic	330	23	516	49	539	54	570	90	240	[7] 57
East South Central	32	16	37	26	21	[2] 83	79	21	116	[8] 48
West South Central	4	103	4	142	4	146	[3] 9	82	9	[9] 7
Mountain	9	2,540	9	2,840	37	3,214	28	2,349	28	2,777
Pacific	25	340	55	704	52	617	77	607	36	884

SCARLET FEVER CASE RATES

101 cities	197	215	211	242	223	[2] 238	[3] 232	[4] 279	203	[5] 256
New England	206	286	216	326	187	340	192	388	240	248
Middle Atlantic	149	137	166	156	172	177	189	214	146	212
East North Central	210	202	261	239	288	236	286	[4] 242	234	[6] 252
West North Central	438	411	405	435	476	431	454	413	438	371
South Atlantic	134	158	119	182	152	175	154	201	157	[7] 153
East South Central	168	239	163	244	110	[2] 149	116	249	168	[8] 296
West South Central	132	198	106	211	141	142	[3] 88	237	97	[9] 171
Mountain	166	783	240	929	157	801	277	1,111	213	974
Pacific	237	251	215	267	185	232	243	386	182	305

SMALLPOX CASE RATES

101 cities	16	5	13	14	21	[2] 11	[3] 20	[4] 16	18	[5] 15
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	1	0	1	1	1	0	0
East North Central	31	7	13	21	33	7	26	[4] 11	25	[6] 16
West North Central	10	30	18	48	18	38	37	46	20	28
South Atlantic	2	4	4	19	8	19	12	26	10	[7] 31
East South Central	11	5	11	0	5	[2] 22	11	78	0	[8] 50
West South Central	9	4	13	9	9	9	[3] 23	43	9	[9] 39
Mountain	9	0	0	18	102	18	37	0	9	18
Pacific	94	5	105	35	124	43	113	40	130	43

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1925 and 1926, respectively.
[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Superior, Wis., not included.
[5] Terre Haute, Ind., Superior, Wis., Lynchburg, Va., Norfolk, Va., Greenville, S. C., Louisville, Ky., and New Orleans, La., not included.
[6] Terre Haute, Ind., and Superior, Wis., not included.
[7] Lynchburg, Va., Norfolk, Va., and Greenville, S. C., not included.
[8] Louisville, Ky., not included.
[9] New Orleans, La., not included.

Summary of weekly reports from cities, November 21 to December 25, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926
101 cities	13	12	19	10	20	[2] 13	[3] 16	[4] 12	9	[5] 10
New England	17	7	22	7	22	2	10	31	10	40
Middle Atlantic	14	13	26	9	25	18	17	8	11	5
East North Central	8	4	8	6	12	3	13	[4] 5	7	[6] 4
West North Central	8	8	10	10	12	4	14	10	4	10
South Atlantic	27	19	19	17	23	24	17	19	12	[7] 16
East South Central	21	31	53	42	26	[2] 44	26	21	5	[8] 21
West South Central	31	17	40	9	31	13	[3] 28	22	9	[9] 7
Mountain	18	18	0	9	18	9	9	9	18	0
Pacific	14	22	14	16	14	16	17	24	8	22

INFLUENZA DEATH RATES

	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926
95 cities	9	10	11	14	13	[2] 17	[3] 14	[4] 14	12	[5] 15
New England	12	9	10	7	10	9	14	7	12	7
Middle Atlantic	8	7	10	13	12	12	8	13	9	11
East North Central	5	9	6	9	11	14	17	[4] 12	8	[6] 10
West North Central	2	2	6	4	6	15	4	15	6	11
South Atlantic	10	15	17	21	8	34	10	26	17	[7] 33
East South Central	26	42	42	42	47	[2] 44	53	5	32	[8] 56
West South Central	34	33	39	43	44	43	[3] 36	43	48	[9] 30
Mountain	9	36	18	46	18	36	0	9	28	27
Pacific	4	0	4	11	4	11	18	7	15	4

PNEUMONIA DEATH RATES

	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926
95 cities	126	126	144	122	130	[2] 129	[3] 149	[4] 138	136	[5] 139
New England	156	132	180	118	132	135	158	149	165	151
Middle Atlantic	145	138	161	150	132	139	148	147	145	166
East North Central	95	99	142	87	116	103	132	[4] 119	101	[6] 110
West North Central	81	74	54	74	84	118	133	120	99	91
South Atlantic	134	165	159	105	173	154	200	126	205	[7] 147
East South Central	179	104	131	135	184	[2] 171	215	130	142	[8] 104
West South Central	150	213	155	161	208	151	[3] 184	184	174	[9] 145
Mountain	157	146	157	200	176	109	120	273	203	164
Pacific	98	124	98	153	76	114	98	124	87	149

[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Superior, Wis., not included.
[5] Terre Haute, Ind., Superior, Wis., Lynchburg, Va., Norfolk, Va., Greenville, S. C., Louisville, Ky., and New Orleans, La., not included.
[6] Terre Haute, Ind., and Superior, Wis., not included.
[7] Lynchburg, Va., Norfolk, Va., and Greenville, S. C., not included.
[8] Louisville, Ky., not included.
[9] New Orleans, La., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total	101	95	29,900,058	30,427,598	29,221,531	29,733,618
New England	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	12	10	2,550,024	2,589,131	2,431,253	2,468,448
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,691
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended December 11, 1926.—The following report for the week ended December 11, 1926, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:						
Bombay	----	0	----	0	5	4
Calcutta	----	0	----	62	60	42
Rangoon	----	0	----	0	1	1
Negapatam	----	0	----	2	2	1
Ceylon: Colombo	0	0	0	0	0	0
Straits Settlements:						
Singapore	0	0	2	1	1	1
Dutch East Indies.						
Cheribon	0	0	0	0	0	0
Surabaya	4	4	0	0	0	0

Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Siam: Bangkok	0	0	2	1	4	1
French Indo-China:						
Saigon and Cholon	0	0	1	0	0	0
Turane	0	0	9	5	0	0
Haiphong	0	0	----	13	0	0
Manchuria:						
Changchun	0	0	0	0	1	0
Mukden	0	0	0	0	1	0
Mauritius	----	5	0	0	0	0
Port Louis	----	3	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Karachi, Chittagong, Cochin, Madras, Vizagapatam, Tuticorin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Samarang, Batavia, Sabang, Makassar, Banjermasin, Palembang, Belawan-Deli, Padang, Tarakan, Balikpapan, Samarinda, Pontianak.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Hong Kong.

Macao.

Formosa.—Keelung.

Japan.—Yokohama, Osaka, Nagasaki, Niigata, Tsuruga, Hakodate, Shimonoseki, Moji, Kobe.

Korea.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow,

Kwantung.—Port Arthur, Dairen.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Madagascar.—Majunga, Tamatave.

Portuguese East Africa.—Mozambique, Beira, Lourenco-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Dutch East Indies.—Menado.
U. S. S. R.—Vladivostok.

Belated information—

Union of South Africa.—Durban remained free from plague, cholera, and smallpox during the week ended December 4.

Japan.—Hiogo, three cholera cases have been reported during the week ended November 20.

French India.—Week ended December 4, smallpox, 1 case, 1 death at Pondicherry; Karikal, nil.

Dutch East Indies.—Week ended December 4, plague, 1 case, 1 death at Surabaya; rats were examined during the week but none were found infected.

BRAZIL

Mortality from communicable diseases—Para—October 31–November 27, 1926.—During the four weeks ended November 27, 1926, 87 deaths from communicable diseases were reported at Para, Brazil, including gastroenteritis, 26; leprosy, 6; malaria, 20; smallpox, 1; and tuberculosis, 34.

Prevailing diseases in surrounding country.—Gastroenteritis, leprosy, malarial fevers, smallpox, and tuberculosis were stated to be the prevailing diseases in the surrounding country.

CANADA

Communicable diseases—Week ended December 18, 1926.—The Canadian Ministry of Health reports cases of certain communicable diseases from six Provinces of Canada for the week ended December 18, 1926, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Total
Cerebrospinal fever				1			1
Lethargic encephalitis				1			1
Influenza	23						23
Poliomyelitis				1			1
Smallpox				35	1	2	38
Typhoid fever	1	1	2	5		1	10

Vital statistics—Quebec—October, 1926.—Births and deaths in the Province of Quebec for the month of October, 1926, have been reported as follows:

Estimated population	2,570,000
Births	6,303
Birth rate per 1,000 population	29.43
Deaths (all causes)	2,728
Death rate per 1,000 population	12.73
Deaths under 1 year	918
Infant mortality rate	145.64
Deaths from—	
Cancer	148
Cerebrospinal meningitis	6
Diabetes	25
Diphtheria	46
Deaths from—Continued.	
Heart disease	340
Influenza	59
Measles	14
Poliomyelitis (infantile paralysis)	1
Scarlet fever	11
Syphilis	5
Tuberculosis (pulmonary)	163
Tuberculosis (other forms)	53
Typhoid fever	17
Whooping cough	46

EGYPT

Plague—November 19–December 2, 1926.—Plague has been reported in Egypt as follows: Week ended November 25, 1926—three cases, of which one case occurred in the city of Alexandria; week ended December 2, 1926—one case occurring at Alexandria.

Summary—January 1–December 2, 1926.—Cases, 147; corresponding period, year 1925, 137 cases.

GREAT BRITAIN (SCOTLAND)

Epidemic scarlet fever—Glasgow—July–November, 1926.—Epidemic prevalence of scarlet fever was reported at Glasgow, Scotland, for the period July to November, 1926, according to months, as follows: July, 305 cases; August, 331; September, 543; October, 758; November, 605 cases. The case mortality during the period under report was stated to have been less than 1 per cent. The low fatality rate was attributed to the mildness of the type of the disease and the administration of serum treatment in the severe cases.

HAITI

Gastroenteritis—Malaria.—Reports received under recent dates through the Public Health Service of Haiti, indicate prevalence of gastrointestinal disorders as the most important health problem of Haiti. Malaria is reported in many sections of the country.

IRELAND (IRISH FREE STATE)

Typhus fever (suspect)—Cork County—November 28–December 4, 1926.—During the week ended December 4, 1926, four cases of (suspect) typhus fever were reported in the district of Fermoy, Cork County, Irish Free State.

LATVIA

Communicable diseases—October, 1926.—During the month of October, 1926, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Diphtheria	57	Paratyphus fever	5
Erysipelas	24	Puerperal fever	2
Leprosy	1	Scarlet fever	465
Lethargic encephalitis	1	Tetanus	2
Malaria	3	Trachoma	25
Measles	61	Typhoid fever	84
Mumps	1	Whooping cough	40

Population, estimated, 1,844,805.

MALTA

Communicable diseases—November, 1926.—During the month of November, 1926, communicable diseases were reported in the Island of Malta as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	3	Measles	7
Chicken pox	2	Pneumonia	10
Diphtheria	10	Puerperal fever	2
Erysipelas	4	Trachoma	74
Influenza	4	Tuberculosis	21
Malaria [1]	2	Typhoid fever	58
Malta fever	33	Whooping cough	33

[1] Contracted abroad.

Population of island (civil), estimated, 225,242.

SALVADOR

Mortality from certain communicable diseases—July-September, 1926.—Reports received for the Republic of Salvador for the three months ended September 30, 1926, show 1 death from diphtheria, 363 deaths from gastroenteritis, 316 from measles, 136 from tuberculosis, and 7 from typhoid fever. Population, 1,600,000.

San Salvador—September, 1926.—During the month of September, 1926, 46 deaths from communicable diseases were reported for the city of San Salvador, including gastroenteritis, 21; measles, 2; tuberculosis, 23. Population, 85,000.

Prevailing diseases.—Malarial and other tropical fevers were stated to be the prevailing diseases in the Republic of Salvador.

SENEGAL

Plague—Yellow fever—Diourbel.—Under date of December 6, 1926, plague and yellow fever were reported at Diourbel, a locality in the interior of Senegal, as follows: *Plague*—November 20 to 30, 1926, cases, 12; deaths, 11. *Yellow fever*—December 6, 1926, one fatal case.

Yellow fever—Rufisque—November 27, 1926.—A fatal case of yellow fever occurring in a European, was reported at Rufisque, Senegal, West Africa, November 27, 1926.

SPAIN

Mortality—Madrid—July-September, 1926.—During the three months ended September 30, 1926, 3,598 deaths from all causes were reported at Madrid, Spain, distributed by months as follows: July, 1,391; August, 1,209; September, 998. The number of deaths for the previous quarterly period was 4,041.

Mortality from communicable diseases.—During the period under report deaths were reported from communicable diseases as follows:

Disease	Deaths	Disease	Deaths
Diphtheria	16	Scarlet fever	38
Measles	18	Tuberculosis (all forms)	445
Meningitis	195	Typhoid fever	56

Population, estimated at end of quarter 766,552.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State—November 7–20, 1926.—During the two weeks ended November 20, 1926, plague was reported in the Union of South Africa as follows: *Cape Province*—November 14–20, 1926, one case, native, occurring in Hanover district; *Orange Free State*—November 7–13, 1926, one fatal case in Hoopstad district. Both cases occurred on farms.

Smallpox—Natal—Orange Free State—Transvaal.—Six cases of smallpox were reported in Durban District, Natal, during the two weeks ended November 20, 1926. The occurrence was in Hindus. In Durban municipality two cases were reported. A total for Durban and vicinity of 56 cases and 11 deaths, all occurring in natives or Hindus, has been reported since the outbreak on October 14 last. *Orange Free State.*—Outbreaks reported November 14–20, 1926. *Transvaal.*—During the two weeks ended November 20, 1926, two cases, in Europeans.

Typhus fever—October, 1926.—During the month of October, 1926, 71 cases of typhus fever with 8 deaths were reported in the Union of South Africa. The occurrence was in the colored population. The distribution according to Provinces was as follows: *Cape Province*—cases, 47; deaths, 7; *Natal*—one case; *Orange Free State*—cases, 22; deaths, 1; *Transvaal*—one case.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended January 14, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14–20			Present.
Tsingtao	Nov. 21–27			Do.
India				Oct. 17–23, 1926: Cases, 1,261; deaths, 753.
Calcutta	Nov. 14–20	39	34	
Siam				Nov. 7–20, 1926: Cases, 61; deaths, 49. Total, Apr. 1–Nov. 20, 1926: Cases, 7,714; deaths, 5,030.
Bangkok	Nov. 7–20	5	1	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 14, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Ceylon:				
Colombo	Nov. 21-27	1	1	Plague rat, 1. The human case terminated fatally outside city.
China:				
Nanking	Oct. 31-Nov. 20			Prevalent.
Egypt				Nov. 19-25, 1926: Cases, 3; Nov. 26-Dec. 2, 1926: Cases, 1. Total, Jan. 1-Dec. 2, 1926: Cases, 117; corresponding period, year 1925, cases, 137.
Alexandria	Nov. 19-Dec. 2	2		
Tanta district	Nov. 19-25	2		
Greece:				
Patras	Nov. 28-Dec. 4		1	
India	Oct. 17-23			Cases, 1,987; deaths, 1,103.
Rangoon	Nov. 14-20	3	2	
Java:				
Batavia	Nov. 14-20	1	1	Province.
Surabaya	Oct 24-Nov. 6	8	8	
Senegal.				
Diourbel	Nov. 20-30	12	11	
Union of South Africa:				
Cape Province—				
Hanover district	Nov. 14-20	1		Native. On farm.
Orange Free State—				
Hoopstad district	Nov. 7-13	1	1	Do.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Bahia	Nov. 14-20	1		
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 24-Dec. 4	42		
Sao Paulo	Aug. 23-Oct. 3	10	8	
Canada:				
Alberta—				
Calgary	Dec. 19-25	2		
Manitoba				Dec 12-18, 1926: Cases, 1.
Winnipeg	Dec. 19-25	1		
Ontario				Dec. 12-18, 1926: Cases, 35.
Saskatchewan				Dec. 12-18, 1926: Cases, 2.
China:				
Chungking	Nov. 7-20			Present.
Swatow	Nov. 21-27			Prevalent.
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Great Britain:				
England and Wales	Dec. 5-11	318		
Newcastle-on-Tyne	do	2		
India				Oct. 17-23, 1926: Cases, 826; deaths, 239.
Bombay	Nov. 7-13	4	2	
Calcutta	Nov. 14-20	12	10	
Madras	Nov. 21-Dec. 4	4	1	
Iraq:				
Baghdad	Oct. 31-Nov. 6	1	1	
Basra	Nov. 7-13	1	1	
Java:				
Batavia	Nov. 14-20	2		Province.
Surabaya	Oct. 31-Nov. 6	4		
Mexico:				
Chihuahua	Dec. 31			Several cases; mild.
Mexico City	Nov. 21-27	1		Including municipalities in Federal District.
San Luis Potosi	Nov. 12-18		2	
Torreon	Dec. 12-25		6	
Poland				Oct. 11-30, 1926: Cases, 30.
Portugal:				
Lisbon	Nov. 22-Dec. 18	24	3	
Siam				Nov. 16-20, 1926: Cases, 23; deaths, 4 Apr 1-Nov. 20, 1926 Cases, 1,301, deaths, 511.
Bangkok	Nov 6-20	9	2	
Union of South Africa				
Natal—				
Durban District	Nov 7-20	8		Including Durban municipality Total, from date of outbreak, Oct 14, 1926, cases, 56, deaths, 11.
Orange Free State	Nov 14-20			Outbreaks
Transvaal	Nov 7-20	2		Europeans

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 14, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Palestine:				
Haifa	Nov. 23-29	2		
Jaffa	do	2		
Nazareth	do	1		
Poland				Oct. 11-Nov. 13, 1926: Cases, 82; deaths, 8.
Union of South Africa				October, 1926: Cases, 71; deaths, 8. Colored.
Cape Province				October, 1926. Cases, 47; deaths, 7.
Do	Nov. 14-20			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Natal				October, 1926: 1 case.
Orange Free State				October, 1926· Cases, 22; death, 1.
Transvaal				October, 1926: Case, 1.

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Senegal (West Africa):				
Diourbel	Dec. 6	1	1	
Rufisque	Nov. 27	1	1	In European.

Reports Received from January 1 to 7, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Tsingtao	Nov. 14-20			Present.
French Settlements in India	Aug. 29-Oct. 2	93	64	
India	Oct. 10-16			Cases, 1,397; deaths, 755.
Calcutta	Oct. 31-Nov. 13	45	35	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925; Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Siam	do			Case, 1.
Do	Apr. 1-Nov. 6			Cases, 7,706; deaths, 5,075.
Bangkok	Oct. 31-Nov. 6	1		
Straits Settlements	July 25-Aug. 21		11	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-28	21	18	
Tafaraoui	do		2	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Ceylon:				
Colombo	Nov. 14-20			One plague rodent.
Ecuador:				
Guayaquil	Nov. 1-30	12	3	Rats taken, 24,887; found infected, 77.

[1] From medical officers of the Public Health Service, American consuls, and other sources. For reports received from June 26 to December 31, 1926, see Public Health Reports for December 31, 1926. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 7, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Greece	Nov. 1-30	10	1	Athens and Piraeus.
Athens	do		3	
India	Oct. 10-16			Cases, 1,565; deaths, 957.
Madras	Oct. 17-23	83	45	
Indo-China	July 1-31			Cases, 21; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 1
Java:				
Batavia	Nov. 7-13	8	8	Province.
Surabaya	Oct. 24-Nov. 6	4	1	
Nigeria	Aug. 1-31	187	164	
Senegal	July 1-31	178	162	
Syria:				
Beirut	Nov. 11-20	1		

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	160		
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Nov. 13	2	3	
Pernambuco	Oct. 17-23	14	2	
Rio de Janeiro	Nov. 14-27	80	41	
Canada	Dec. 5-11			Cases, 59.
Alberta	do	14		
Calgary	Nov. 28-Dec. 18	10		
Manitoba	Dec. 5-11	3		
Ontario	do	33		
Ottawa	Dec. 12-18	4		
Toronto	Dec. 14-20	11		
Saskatchewan	Dec. 5-11	9		
China:				
Foochow	Nov. 7-13			Present.
Hankow	Nov. 6-30			Do.
Chosen	Aug. 1-31	33	10	
Estonia	Oct. 1-30	2		
France	Sept. 1-30	66		
French Settlements in India	Aug. 29-Sept. 25	40	40	
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Dec. 4	982		
Greece	Nov. 1-30	20		
India	Oct. 10-16			Cases, 509; deaths, 145.
Calcutta	Oct. 31-Nov. 13	4	4	
Indo-China	July 1-31			Cases, 29; deaths, 10
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Italy	Aug. 29-Sept. 11	4		
Jamaica	Dec. 5-11	20		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Java:				
Surabaya	Oct. 24-30	2		
Mexico:				
Ciudad Juarez	Dec. 14-20		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
San Luis Potosi	do		1	
Torreon	Nov. 28-Dec. 4		1	
Portugal:				
Lisbon	do	13		
Rumania	Jan. 1-Sept. 30	7	1	
Siam	Apr. 1-Nov. 6			Cases, 631; deaths, 252.
Bangkok	Oct. 31-Nov. 6	3	1	
Tunisia	Oct. 1-20	1		
Union of South Africa:				
Transvaal—				
Johannesburg	Nov. 14-20	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 7, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	12		
Bulgaria	July 1-Sept. 30	221	24	
Chile:				
Valparaiso	Nov. 21-Dec. 4	2		
China:				
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-31	5		
Greece	Nov. 1-30	12	1	
Italy	Aug. 29-Sept. 11	1		
Lithuania	Sept. 1-30	12	2	
Mexico:				
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Palestine:				
Nahalal	Nov. 16-22	1		Nazareth district.
Rumania	Aug. 1-Sept. 30	72	3	
Russia	Aug. 1-31	1,156		
Tunisia	Oct. 1-20	3		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Aug. 1-31	7	2	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 3

JANUARY 21 - - 1927

SPECIAL ARTICLES

Cultivation of Virulent Bacteria from Encephalitic Virus
Sterilization Efficiency of the Arsphenamines in Experimental Syphilis

WASHINGTON
GOVERNMENT PRINTING OFFICE
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 JANUARY 21, 1927 No. 3

INFLUENZA IN EUROPE

The following information was received by cable from the Health Section of the Secretariat of the League of Nations, January 14, 1927:

Further official telegraphic information shows no unusual prevalence of influenza in Bulgaria, Egypt, Estonia, Finland, Hungary, Latvia, or India. A mild type of the disease is reported in Greece, Rumania, Yugoslavia, and in Poland at Warsaw, Lemberg, and Cracow. The large English towns reported 172 deaths from influenza for the first week of January and 86 deaths from this disease for the preceding week. The disease is decreasing in Geneva, Bern, and Basel, Switzerland.

ACCIDENTS TO CHILDREN FROM BLASTING CAPS

The yearly increases in the number of automobile accidents in this country have brought the number of accidental deaths from that cause to such alarming proportions that other and less frequent accidents causing injury and death are often overlooked, although they are of a type which may be reduced by proper educational and cautionary measures. Of the latter type are accidents to children from blasting caps; and the Institute of Makers of Explosives has undertaken to warn the public of the dangers from these explosives, which, it is stated, cause the death or mangling of 500 children annually. In this educational program the institute, calling upon all health authorities and others interested in health work to bring these facts before the public, has prepared a brief statement regarding the subject. This statement is contained in a circular suitable for broadcasting, which reads as follows:

PROTECTING CHILDREN FROM BLASTING CAPS

There are approximately 500 children crippled each year in the United States by playing with blasting caps which they have picked up in the vicinity of mines, quarries, or in the fields where agricultural blasting has been done.

This means that there are approximately 500 children who will have to go through life with mangled hands, faces, arms, and legs. Some of them are killed.

Blasting caps contain fulminate of mercury, a quick, powerful explosive. It is readily exploded. It will explode when struck by a hammer. The blasting cap will explode when thrown into the fire. It will also explode when children try to extract the contents with a pin, or by holding a lighted match to it, or by thrusting the flaming end of the match into the cap. In the mines and quarries, even, where the men who have to use blasting caps every day ought to know better, there are plenty of mangled hands and other injuries as the result of "crimping" caps on fuses with a jackknife, pointed nail, or any tool that's handy. Many a miner has crippled himself for life in biting the cap on the fuse, and others have filled themselves with copper or have been killed outright by letting the sparks from their hat lamps or pipes drop into an open box of caps. Many blasters continue to bite the caps on the fuse, and think that because they have never exploded them in doing so they never will; but some day they will bite the business end of the cap and cripple themselves for the remainder of their lives. It is much easier, and lots safer, to use a crimper, a tool made for the purpose. Accidentally stepping on a cap will often result in a mangled foot. Sparks, flame, heat, blows, friction—all serve to explode the cap to which they are applied.

Boys often play in and around quarries on Sundays, and sometimes pick up stray caps and start to investigate them. It is the rarest thing that they ever do this without getting hurt. They perhaps know the caps are dangerous, and that a spark or a blow will explode them; but they do not realize just how sensitive they are, how violent is the explosion, or how the pieces of copper fly. Even the name is misleading in this respect. The word "caps" suggests the paper caps used with toy pistols; and because the blasting caps are called by this name it is natural to think that the two varieties belong to the same family. They may; but they bear about the same resemblance to each other that a hungry, man-eating tiger does to the gentle pussycat.

If all the children mangled during the past year by blasting caps had been hurt at one time, what an impression would have been created! But because the accidents are spread all over the country and happen at the rate of only about 40 or 50 a month, nothing is done. Indeed the best thing to be done is to educate the whole population to realize how dangerous these exceedingly useful things are when they are out of their proper place, and what a dreadful thing it means to go through life crippled or blinded for lack of a little care and knowledge.

A blasting cap is a copper shell about a quarter of an inch in diameter and an inch or two long, half full of fulminate of mercury. This fulminate is the most sensitive and about the most impulsive explosive in common use. Blasting caps contain anywhere from

15 to 30 grains of it; primers for firearm cartridges usually contain not more than one-fifth grain. That's what the hammer or firing pin of a gun or pistol hits to ignite the powder in the shell. A blasting cap is meant to work the other way. The powder from the fuse ignites the fulminate in the blasting cap, and it explodes with terrific force and detonates the dynamite. The explosion of the fulminate is so exceedingly quick that the flying particles of copper will imbed themselves in iron a foot away. They will blow a hole entirely through a steel plate one-sixteenth of an inch thick. A box of caps will blow a hole through a two-inch oak plank. One cap will blow a child's hand off. Lingg, one of the Chicago anarchists, committed suicide by biting a blasting cap between his teeth.

The point to be remembered is that when a blasting cap goes off it does great damage locally. There is no escaping its effects. Among all the accidents reported from playing with blasting caps there are only two or three in which somebody was not hurt.

Electric blasting caps are as strong as ordinary blasting caps; but, as the capsule or shell is sealed up with a sulphur plug through which the wires are carried down to the fulminate, not so many accidents occur in playing with them. They are generally dipped in dark-colored wax, and are not such attractive playthings as the bright copper blasting caps; but "they get there just the same." Amateur electricians are earnestly advised to bury the electric cap a foot or two in the earth before trying to pass electric currents through the wires, and they had better not do it then. Don't open it up to see what's in it! Don't carry caps around in your pockets! Don't take them home with you! Don't leave them where children can get at them! Don't fool with them!

PUBLIC HEALTH SERVICE AWARDED MEDALS FOR HEALTH EXHIBIT

The United States Public Health Service has recently been advised by the jury of awards of the National Sesquicentennial Exposition that it has been awarded four gold medals for various features of its exhibit at the exposition in Philadelphia during the past summer.

These medals were awarded as follows: For chlorinating machines using chlorine gas for destroying germs in drinking water; for life-like vaccination models showing types of reaction to smallpox vaccination; for selection of health subjects and neatness of display, collective exhibit; for modern unit for all dental surgery.

The United States Public Health Service has participated in all of the great expositions that have been held in the United States since 1900. Medals were awarded to the Service for its exhibits at expositions held in Jamestown, St. Louis, Buffalo, San Francisco, and Philadelphia.

The material which the Public Health Service had on display at Philadelphia is now being placed in position in one of the Service buildings in Washington, D. C., so that visitors to the National Capital may have an opportunity of seeing this exhibit. The various models, charts, and mechanical devices are designed to show the progress of preventive medicine.

In addition to this health exhibit of the Public Health Service, there is on display in the National Capital an extensive health exhibit in the Old National Museum in a special section called "The Hall of Health." This National Museum exhibit was prepared and furnished by various official and voluntary health agencies, and is highly instructive to anyone interested in modern methods of promotion of physical fitness.

FORCE AND EFFECT OF HEALTH REGULATIONS

In the case of State *v.* Quattropani, an abstract of which was published in the Public Health Reports of September 17, 1926, page 2030, the Supreme Court of Vermont upheld an order of the State board of health made under a statute authorizing the board to make regulations. The order thus upheld was as binding as if its provisions had been enacted into law by the legislature, and is but another illustration of the established rule that reasonable health regulations adopted pursuant to statutory authority have all the force and effect of a legislative enactment. In this connection the following portions of the court's opinion in the case are of interest:

That the public health is a proper subject for police power protection, and that that power can lawfully be delegated to the State board of health, are both unquestioned and unquestionable. And it is not to be forgotten that its orders, when made under statutory authority and in conformity with the law, have all the force and effect of legislative enactments. * * *

A notice to the respondent in advance of this order was no more required than such a notice would have been if the provisions of the order had been embodied in a special act of the legislature. In either case, he would be entitled to such notice, if any, as the statute required, and none other. His ignorance of the order, if shown, would not affect his situation. * * *

* * * This order is presumptively valid (State *v.* Morse, supra), and it must be enforced unless it is made manifest that it has no just relation to public health protection, or that it is a plain, palpable invasion of constitutional rights. * * * If either of these infirmities appear, it is our duty to declare its invalidity. * * *

We can not say that as matter of law this order was unreasonable and arbitrary. We are aware that cases are to be found in which similar orders have been condemned, but we see no reason for departing from a policy fully established by our decisions of approving a generously free exercise of the power to safeguard the health of the public. In sustaining such regulations as the one before us, we are sufficiently supported by the decision. * * *

STUDIES ON THE ETIOLOGY OF EPIDEMIC ENCEPHALITIS

II. VIRULENT BACTERIA CULTIVATED FROM SO-CALLED HERPETIC AND ENCEPHALITIC VIRUSES

By ALICE C. EVANS, Associate Bacteriologist, Hygienic Laboratory, United States Public Health Service

In a recent publication (Evans and Freeman) there was presented a report of studies on a pleomorphic organism obtained from the midbrain and heart blood at necropsy, and from the nasal washings a few days before death, in a case of epidemic encephalitis. The organism would pass through porcelain filters capable of holding back ordinary bacteria. Detailed description was given of the streptococcus form of the organism, the form in which virulence was found to be highest and most stable. The disease which the streptococcus caused in monkeys and in rabbits was described. A spore-producing rod form of the organism was merely mentioned.

It appeared that the next step to be taken should be an attempt to correlate our results, which confirmed those of certain other workers, with the results of those investigators who have obtained from cases of epidemic encephalitis a virus which they carry from animal to animal without the cultivation of organisms between passages.

The works of Doerr and his collaborators and of Blanc and Caminopetros, confirmed by others, have shown that a filterable virus capable of producing encephalitis in rabbits can be obtained from the vesicles of herpes. Doerr and Schnabel, Levaditi, Harvier and Nicolau, Flexner and Amoss, and Takaki have shown further that the viruses of epidemic encephalitis and of herpes are immunologically related. Levaditi and his coworkers believe that the herpes virus and the encephalitis virus are varieties of the same organism, differing only in degree of pathogenic activity. Zinsser and Tang were unable to confirm the immunological relationship between the encephalitis and herpes viruses, but they were able to modify the herpes virus disease in rabbits so that it simulated many of the clinical features of human encephalitis. Thus there is general agreement as to the similarity of the herpes and encephalitis viruses. The virus of herpes therefore appeared to offer good material for bacteriological study in connection with the epidemic encephalitis problem.

Requests were made to several laboratories where herpes or encephalitis virus had been studied. In response to these requests, six strains of virus were received, only one of which came from a case of encephalitis.

The writer is indebted to those named below for their courtesy in sending samples of virus.

VIRUSES

Herpes virus No. 810 was received from Dr. Hans Zinsser, Harvard University Medical School, Boston, Mass. The virus received was in the twenty-eighth passage.

Herpes virus A was received from Dr. Charles E. Simon, Johns Hopkins University, Baltimore, Md. It was obtained from a herpetic vesicle on an otherwise healthy subject.

Virus Beckley and virus H. F. were received from Dr. Simon Flexner, Rockefeller Institute, New York City.

Virus Beckley was obtained from the cerebrospinal fluid of a syphilitic patient who had been under observation over a long period, and had never shown or complained of symptoms other than those referable to the syphilitic infection. This virus is described by Flexner and Amoss in *The Journal of Experimental Medicine.* (Vol. 41, 1925, pp. 215–231.)

Virus H. F. was obtained from a fresh herpetic vesicle on the lip of a subject very prone to attacks of febrile herpes. It is described by Flexner and Amoss in *The Journal of Experimental Medicine.* (Vol. 41, 1925, pp. 233–244.)

Virus H_4 and virus E. $L._1$ were received from Dr. J. R. Perdrau, Medical Research Council, London, England.

Virus H_4 was obtained in 1922 from vesicles on the lips of a woman who was suffering from an ordinary cold in the head. It is described by Perdrau in *The British Journal of Experimental Pathology.* (Vol. 6, 1925, pp. 41–52.) The sample received was in the sixty-second passage.

Virus E. $L._1$ was obtained from the brain of a case of acute encephalitis lethargica. It is described by Perdrau in *The British Journal of Experimental Pathology.* (Vol. 6, 1925, pp. 123–128.) The sample received was in the nineteenth passage.

Rabbits inoculated intracerebrally with emulsion of any one of the six viruses developed the symptoms described by Blanc and Caminopetros, Flexner and Amoss, Perdrau, and other workers—salivation, gnashing of teeth, tremors, excitability, circling movements, somersaulting, and rhythmical movements, such as raising and lowering one foot. Death occurred on the third to the eighth day after inoculation. Of the six strains, virus No. 810 was found to be the most rapid in its action, causing death generally on the third day when 0.25 cubic centimeter of a 10 per cent emulsion of virus was inoculated intracerebrally.

BACTERIOLOGICAL INVESTIGATIONS

Smears of the brains of rabbits which died of the virus disease were stained with Gram-safranin and examined for bacteria. On some slides nothing resembling bacteria could be found in a careful search. On other slides prepared with the same brain, in some cases certain areas could be found in which there were scattered clumps of bacteria and isolated individuals. Figure 1 shows a clump of bacteria in a smear prepared with the brain of a rabbit inoculated with virus

Beckley. This rabbit was the first through which the virus was passed by the writer. Under the microscope the compact masses which appear as black spots in the photograph are readily seen to be made up of bacteria. Numerous similar clumps of these small irregular forms could be found within a limited area of the smear, and by diligent searching a few cocci in pairs or small clusters could be found widely scattered over other parts of the smear. Thus it was determined that bacteria were present in the brain; yet when planted by ordinary methods no growth was obtained. Cultures were obtained, however, by planting meat medium heavily with emulsion, as described later.

Figure 2 shows a small cluster of diplococci in a smear prepared with the brain of a rabbit inoculated with virus H. F. This also was in the first animal passage of the virus after it was received by the writer. Long searching was necessary to find bacteria on this slide, but several clusters of diplococci similar to the one photographed were found. Pieces of this brain were planted without success, but cultures were obtained by planting meat medium heavily with an emulsion of the brain.

TECHNIQUE

The media used in this study were the same as those described in the previous paper. The description of the meat medium will be repeated here, because its use is believed to be important for success in the cultivation of bacteria from the virus. Ordinary beef infusion broth is prepared, and the hydrogen ion concentration is adjusted to pH 8.0. Instead of discarding the meat from which the broth is made, the ground meat particles are placed in the tubes to a depth of about 1 inch. Sterilization is at 15 pounds for 1½ hours. During the sterilization the hydrogen ion concentration is reduced to about pH 6.8. An emulsion of about 10 or 15 per cent of virus in salt solution is prepared, and the meat medium is planted with 1 or 2 cubic centimeters of emulsion per tube.

With the use of this method, organisms of the same morphology as those obtained from the case of encephalitis and described in the earlier publication were cultivated from all six of the viruses in both the streptococcus and the spore-producing rod forms. In some cases the cultures were obtained directly from the glycerinated virus as received from the sender. Thus the streptococcus was cultivated from viruses No. 810 and H. F., and the spore-producing rod was cultivated directly from viruses No. 810 and Beckley. In order to cultivate these organisms from the remaining viruses it was necessary to secure fresh specimens by animal passage.

Cultures of either the streptococcus or the rod form could be obtained sometimes by planting filtrates of the brain emulsion. For the filtration experiments an emulsion of about 5 per cent of brain

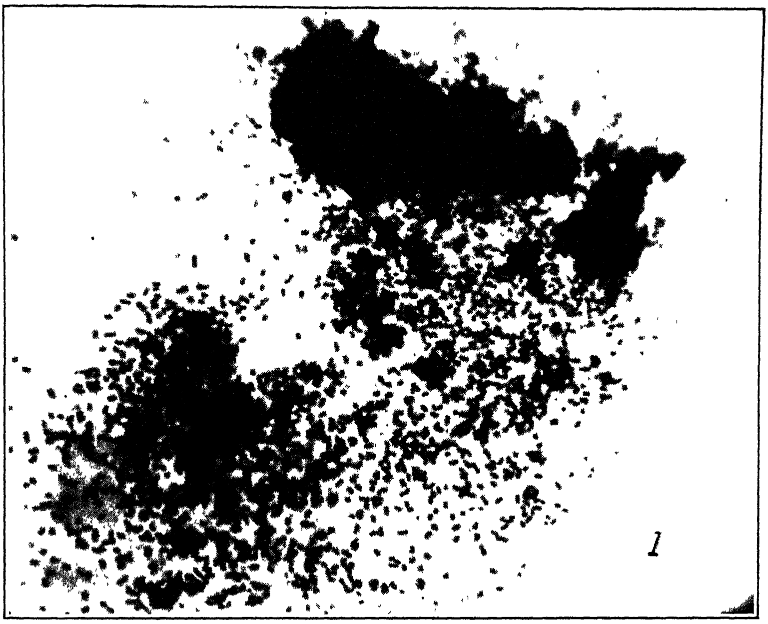
in saline solution was prepared. It was centrifugated at low speed to throw down the coarse particles, leaving the supernatant fluid slightly turbid. Growth from a young agar culture of *Serratia marcescens* (*Bacillus prodigiosus*) was smeared over the candle of a Berkefeld N filter, and then the emulsion was drawn through the filter by means of a water pump. Meat medium was planted heavily with the filtrate—usually with 2 or 3 cubic centimeters per tube. Vitamine agar slopes were also planted with about 0.5 cubic centimeter of filtrate. The filter was considered efficient if *S. marcescens* failed to grow in the cultures.

Both the streptococcus and the spore-producing rod form retain their ability to grow on ordinary media after passage through rabbits, provided death occurs within two or three days after inoculation. If, however, the disease is prolonged, it is usually necessary to plant an emulsion of the brain in meat medium to recover the organism.

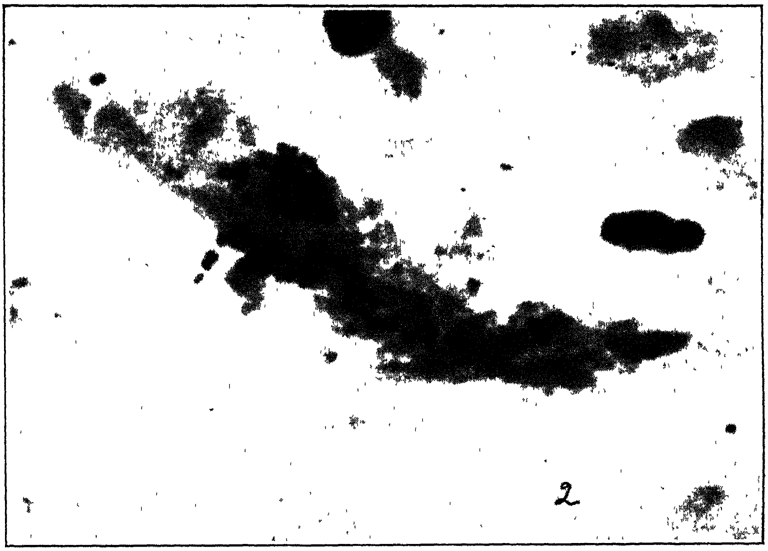
The virulence of the streptococci from the six strains of virus was notably less than that of the streptococcus from a case of epidemic encephalitis described in the earlier publication, which killed rabbits when 0.25 cubic centimeters of meat medium culture diluted 1 to 10,000 was inoculated intracerebrally. With the same method the comparative virulence of the various strains of streptococci obtained from the six viruses was determined The streptococcus from virus H. F. showed the weakest virulence, merely causing slight nervous symptoms in a rabbit injected with undiluted culture. The streptococcus obtained from virus No. 810 showed the highest virulence of the six strains under consideration, causing death in about 25 hours when diluted 1 to 100, but causing no symptoms when diluted 1 to 1,000. It may be recalled here that of the six strains of virus No. 810 was capable of bringing about death most rapidly. The symptoms caused by intracerebral inoculation of rabbits with the strains of streptococci from the viruses were the same as those following intracerebral inoculation with the streptococci from the human case of encephalitis as described in the previous paper.

The streptococcus from virus No. 810, designated P123, was chosen to represent the strains of streptococci from the viruses in further experimental work. As in the case of the streptococcus from human encephalitis described in the earlier publication, P123 usually did not infect rabbits when inoculations were intravenous; but if infection did occur following intravenous inoculation, it was located in the brain and caused the same kind of symptoms as followed intracerebral inoculation with this organism—symptoms which resembled to some extent those following intracerebral inoculation of virus. The protocols for two rabbits are given below:

Rabbit 376.—April 2, 1926: Inoculated intravenously with 0.5 cubic centimeter of culture P123. April 5: The rabbit lies helpless



Bacteria in a smear of the brain of a rabbit inoculated with herpes virus Beckley. Stained with Gram-safranin. (X 1,700, approx.)



Bacteria in a smear of the brain of a rabbit inoculated with herpes virus H. F. Stained with Gram-safranin. (X 2,200, approx.)

on its side, with occasional clonic movements. April 6: No change. April 7, 9.30 a. m.: The movements are weaker; grinding teeth. 4 p. m.: Dead. At autopsy the entire brain was found much congested. There had been a hemorrhage over the region of the midbrain. Meat medium and agar slopes were planted with heart blood, and with pieces of lung, liver, and brain. A series of three vitamin agar slopes were planted with brain without flaming the loop between the plantings, in order to obtain an idea about how heavily the brain was infected. April 9: No growth from heart blood; no growth on agar slopes planted with lung; there is growth of an extraneous organism in the meat medium planted with lung. Agar slopes planted with liver show a few staphylococcus colonies. Meat medium planted with liver is clouded with a mixed culture of staphylococci and small cocci in chains, presumably strain P123. All tubes planted with brain show pure cultures of streptococci with all the characteristics of strain P123. Even on the last tube of the series of agar slopes there are innumerable streptococcus colonies.

Rabbit 464.—Intravenous inoculations with P123 were made as follows: April 29, 1926, 0.125 cubic centimeter (diluted to 2 cubic centimeters in saline solution); May 3, 0.25 cubic centimeter; May 7, 0.5 cubic centimeter; May 10, 1.0 cubic centimeter; May 14, 18, 19, and 20, 2.0 cubic centimeters. May 25: The rabbit runs sidewise, falls down, and rolls over and over. May 26: The rabbit lies in a twisted position. When set on his feet he is able to stand, with head strongly rotated. When placed on the floor he rolls over rapidly. May 27: Weaker. June 5: Rabbit continues to grow weaker. No other change. June 8: Improvement began. At the time of this writing, five months after the development of symptoms, the rabbit is still living, in good condition, except for a strongly rotated head, with right eye directed upward. When placed upon the floor he moves in circles.

The spore-producing rod cultivated from the six strains of virus, which has also been cultivated from a number of human cases of encephalitis, will be described in a separate paper, together with a description of the disease it produces in experimental animals.

SUMMARY

Six strains of so-called virus were studied bacteriologically. Four of these strains were originally from vesicles in cases of herpes, one was from the cerebrospinal fluid in a case of syphilis, and one was from the brain in a case of epidemic encephalitis. Cultures of virulent streptococci, and cultures of a spore-producing rod were obtained from all six strains.

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STERILIZING EFFICIENCY OF ARSPHENAMINE, NEOARSPHENAMINE, AND SULPHARSPHENAMINE IN EXPERIMENTAL SYPHILIS

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The ideal of chemotherapy, as conceived by Ehrlich, is the complete sterilization of the infected animal or patient by means of specific drugs. Sterilization, of course, means nothing less than the destruction of *all* parasites in the infected host, i. e., the complete eradication of the disease.

It is a rather astonishing fact that no systematic work has been done so far in order to determine the sterilizing efficiency of arsphenamine and its derivatives in experimental syphilitic infection. Ehrlich and some of his followers confined themselves to the determination of a "clinical cure"; i. e., the complete relief from all symptoms and signs of the disease over a prolonged period of observation. It was only in later years, based on the work of Neisser (1911), and particularly of Pearce and Brown (1922), that investigators began to appreciate the fact that syphilitic infection in rabbits, as in man, often assumes a latent form as a result of inadequate treatment or sometimes even as a result of spontaneous retrogression without any treatment. Special methods are therefore required in order to determine the sterilizing action of drugs in this disease. Two

methods have been proposed for this purpose; first, the so-called reinoculation method, and second, the tissue transfer method.[1]

The *reinoculation method* is based on the fact that reinoculation of an untreated syphilitic rabbit with syphilitic virus several weeks or months after the primary inoculation is not followed by the production of a chancre at the site of the reinoculation; i. e., the tissues in the later stages of the disease develop a certain degree of resistance. It was assumed, therefore, by Neisser (1911) and particularly by Kolle (1922 and 1924) that if reinoculation of a syphilitic animal some time after treatment was followed by the appearance of a chancre, the treatment had sterilized the animal. If, on the other hand, reinoculation did not produce a chancre, then the animal was not considered sterilized by the treatment. Using this method, Kolle (1922 and 1924) came to the surprising conclusion that sterilization of syphilitic rabbits is impossible even with the most intensive treatment with the arsphenamines, if treatment is begun late in the course of the disease. However, Chesney and Kemp (1925) and Voegtlin and Dyer (1925)[2] on the basis of further extensive work arrived at the opinion that the reinoculation test is very difficult of correct interpretation and is, therefore, misleading.

The *tissue transfer method* is now accepted by most workers as the most reliable, though not infallible, method. It rests on the observation that the disease can be consistently transmitted from an infected animal to a normal one by means of a maceration of lymph glands. (Pearce and Brown, 1922.) Production of a chancre in a normal rabbit as a result of the injection of lymph gland maceration from a rabbit having undergone previous treatment, is absolute proof that the treatment did not produce sterilization. On the other hand, failure to produce a chancre in the normal rabbit is good, but not absolute evidence of sterilization for the reason that occasionally a normal rabbit will not respond with a chancre, though the infection is unquestionably transmitted. (Pearce and Brown, 1922; Worms, 1926; Kolle and Schlossberger, 1926; Kolle and Evers, 1926.) These cases of "asymptomatic infection" are fortunately rare and do not exceed 10 per cent of the inoculated animals. As will be shown later, this error can be almost completely eliminated by the adoption of some modifications of the original technic of Pearce and Brown (1922). The results we obtained with this modified technic of tissue transfer are so consistent that they can be regarded as thoroughly trust-

[1] A standardized method for the therapeutic study of compounds in experimental rabbit syphilis has been described by Wakerlin, Lorenz, and Loevenhart (J. Pharmacol. & Exp. Ther., 1925, xxvi, 187). The method is valuable for the study of new compounds of unknown therapeutic action, but for obvious reasons was not needed for our purpose.

[2] An obvious printing error in this paper should be corrected as follows: All broken lines in Tables 1 and 2 under headings "Result of reinoculation" and "Result of inoculation with *T. pertenue*" should be replaced by — (negative sign), thus indicating, in conformity with the text, that these inoculations did not result in chancres.

worthy. Our principal conclusions of fundamental importance are the following:

1. Syphilitic infection in rabbits can be completely eradicated even in the later stages of the disease by a single large dose of arsphenamine, neoarsphenamine or sulpharsphenamine.

2. The minimal sterilizing dose is considerably larger than the "therapeutic dose." The latter is defined as the dose which causes the rapid disappearance of the spirochetes from the primary lesion and the healing of the lesions.

3. The sterilizing action of an equal amount of arsenic in the form of arsphenamine, neoarsphenamine, or sulpharsphenamine is the same.

We shall now proceed to a description of the general plan and the technic of our work, which, it will be realized, is extremely time consuming.

EXPERIMENTAL PART

1. *Inoculation and periodic examination of animals.*—We have made it a rule to select for this work only healthy, vigorous rabbits with well-developed testicles, which have been quarantined for several weeks in separate cages in order to eliminate as far as possible intercurrent infections. But even with this precaution it is impracticable to avoid some deaths during the experiment from intercurrent respiratory infection, especially during the colder season. We, therefore, recommend to inoculate a somewhat larger number of animals than are actually desired for the therapeutic test. They are inoculated into the scrotum with 0.5 cubic centimeter of an emulsion containing numerous spirochetes to the microscopic field. The Nichols strain, originally obtained from the cerebrospinal fluid of a case of neurosyphilis, was employed.

All of the animals are kept under careful observation throughout the course of the experiment, the appearance of chancres and their progress being closely followed. All lesions are examined thoroughly for the presence of spirochetes by dark field examination of the serum.

2. *Treatment.*—Treatment was carried out as a rule about eight weeks after inoculation, at a time when the primary lesions were either still fully developed or had begun to retrogress. The animals were divided into three groups, group A being treated with arsphenamine intravenously, group B receiving neoarsphenamine intravenously, and group C being injected with sulpharsphenamine into the muscles of the thigh.

The doses are expressed as number of cubic centimeters of a 0.01 arsenic equivalent solution per kilogram body weight, a mode of expression which permits a direct comparison of the effectiveness of the three drugs on the arsenic basis. The doses are also given as number of milligrams per kilo.

Different groups were treated with different doses, ranging from 2 to 20 cubic centimeters; the lower dose being on the border of the minimal therapeutic dose. More animals were put on the higher doses in order to obtain a better precision of the minimal sterilizing dose, the low doses serving merely as a guide in the estimation of the relation between sterilizing and therapeutic dose. It is thus seen, that the general plan with regard to dosage is essentially the same as that followed for a number of years in this laboratory in the estimation of the trypanocidal value of arsenicals. We believe that such a plan furnishes the most complete and reliable information concerning the sterilizing efficiency of any chemotherapeutic agent. The drugs were injected in accordance with established clinical technic, with regard to concentration and rate of injection.

The arsphenamine and neoarsphenamine used were manufactured according to the original German patent, the sulpharsphenamine was a product manufactured according to the method of Voegtlin and Johnson (1922). All three products were average products with regard to toxicity and trypanocidal action as established in rats according to the official methods.

The chancres were examined for the presence of living spirochetes (dark field) immediately before and after the treatment.

3. *Tissue transfer tests.*—Some time after complete healing of the lesions and from 6 to 20 weeks after treatment the tissue transfer to normal animals was carried out. We purposely delayed the tissue transfer so long after treatment in order to allow sufficient time for the complete excretion of the drug, and the spreading of the infection in case any spirochetes had survived the treatment. After chloroforming the animals the two popliteal lymph glands were removed aseptically, cut up thoroughly, and suspended in about 1 cubic centimeter of saline. One half of the suspension was injected into the left scrotum of a normal rabbit, the other half into the left scrotum of another normal rabbit. A saline emulsion was also made of the originally infected testicle of the treated rabbit and 1 cubic centimeter of this was injected into the right scrota of both normal rabbits. The transfer rabbits were carefully observed for the occurrence of chancres for a further period of 12 weeks or longer. All suspicious or characteristic lesions were carefully examined, on several occasions if necessary, for the presence of spirochetes (dark field) and only those animals were considered infected in which spirochetes could be found. The positive transfers began to show evidence of infection within 3½ to 10 weeks after inoculation, with an average of 6 weeks. As an additional safeguard, a large number of the transfer animals which had not shown obvious infection (chancre), were inoculated (scrotum) with a heavy suspension of spirochetes in order to demonstrate that these animals were not naturally refractory against the production of primary lesions.

We have good reason to believe that this technic considerably increases the reliability of the test, as will now be shown by an analysis of some of our material with a bearing on this question.

All of 208 transfer rabbits (104 pairs) had survived the 3 to 6 months' period of observation and yielded consistent results, as each rabbit of 39 pairs developed a chancre with spirochetes demonstrable by dark field examination, and each rabbit of 65 pairs remained normal. Forty-two of the positive rabbits developed lesions on both testicles, the one inoculated with lymph gland emulsion and the one with testicular emulsion. Of the 36 rabbits that developed only lesions on one testicle, 20 of the chancres appeared on the testicle inoculated with lymph gland emulsion, while 16 were on the testicle inoculated with testicular emulsion.

Forty-seven rabbits that failed to show evidence of infection after inoculation with lymph gland and testicular emulsion from treated rabbits were inoculated after an interval of five to seven months with a heavy suspension of spirochetes. Forty-one of these rabbits developed typical lesions with spirochetes, 5 remained normal, and 1 died prematurely with an atypical lesion in which no spirochetes could be found.

4. *Toxicity tests.*—In order to obtain an approximate estimate of the relations between the maximal tolerated dose to the minimal sterilizing dose (index of sterilization) the three drugs were injected intravenously into normal rabbits. These animals were kept under observation for six weeks and in case of death were submitted to a careful necropsy in order to determine whether or not death was due to arsenic poisoning.

DISCUSSION OF RESULTS

All previously published data concerning the sterilizing action of arsphenamine, neoarsphenamine, and sulpharsphenamine in which the lymph gland transfer method was used as a criterion are compiled in Table 1. These figures may be used for comparison with our present data, provided the reader realizes that the method of simple lymph gland transfer, using either only one lymph gland or only one transfer rabbit for each treated rabbit, may indicate a higher sterilizing efficiency than if our more rigorous technic is used.

Our present observations are based on 91 syphilitic rabbits treated with arsenicals according to the plan previously outlined. An additional 182 rabbits were used for the tissue transfers, making altogether 273 animals.

The results are summarized in Table 2. In the column headed "Percentage sterilization" are found the data indicating how many of the animals treated with a given dose of a certain arsenical were sterilized as shown by the tissue transfer method. For instance, 100 means that all of the animals were sterilized, and 50 means that only one-half were sterilized.

TABLE 1.—*Summary of all previous observations on the sterilizing action of arsphenamine, neoarsphenamine, and sulpharsphenamine, using the lymph-gland transfer as a criterion of sterilization*

[The Nichols strain was used throughout. Doses are expressed as milligrams per kilo]

Drug	Interval between inoculation and treatment (days)	Treatment	Number of animals	Result of lymph-gland transfer	Reference
Arsphenamine (i.v.)	18	6 mgm. once	2	Not sterilized	Pearce and Brown J. Exp. Med., 1922, xxxv, 39.
Neoarsphenamine (i. v.).	18	9 mgm. once	3	do	
Arsphenamine (i.v.)	130	10 mgm. once	1	Sterilized	Nichols and Walker J. Exp. Med., 1923, xxxvii, 525.
	174	10 mgm. twice	1	do	
	110	10 mgm. four times	1	do	
Neoarsphenamine (i. v.).	130	15 mgm. once	1	do	
	125	15 mgm. twice	1	do	
Do	70	15 mgm. once	1	do	Voegtlin, Armstrong, and Dyer, Public Health Reports, 1923, xxxviii, 1815.
	70	36 mgm. once	1	do	
Sulpharsphenamine (s. c.).	70	27 mgm. once	1	do	
	70	50 mgm. once	1	do	
Arsphenamine (i.v.)	127	10 mgm. six injections at weekly intervals.	10	do	Chesney and Kemp, J. Exp. Med., 1924, xxxix, 553.
Do	41-50	do	13	do	Chesney and Kemp, J. Exp. Med., 1925, xlii, 17.
	181-291		13	do	
Neoarsphenamine (i. v.).	56-63	75 mgm. three injections at weekly intervals.	(?)	do	Wakerlin, Lorenz, and Loevenhart, J. Pharmacol. and Exp. Ther., 1925, xxvi, 187.

TABLE 2.—*Comparison of the sterilizing efficiency of arsphenamine, neoarsphenamine, and sulpharsphenamine in experimental syphilis in rabbits*

Arsphenamine				Neoarsphenamine				Sulpharsphenamine			
Dose		Number of animals	Percentage sterilization	Dose		Number of animals	Percentage sterilization	Dose		Number of animals	Percentage sterilization
Cubic centimeters	Milligrams			Cubic centimeters	Milligrams			Cubic centimeters	Milligrams		
2	4.7	1	0	2	8.0	1	0	2	7.0	3	0
3	7.0	2	50	3	12.0	2	0	3	10.5	3	33
4	9.4	6	33	4	16.0	6	50	4	14.0	6	0
								5	17.5	3	33
6	14.0	6	83	6	24.0	5	40	6	21.0	5	60
10	23.5	7	86	10	40.0	6	100	10	35.0	7	100
20	47.0	7	100	20	80.0	7	100	20	70.0	8	100

The dose is given as number of cubic centimeters of a 0.01 arsenic equivalent solution or as number of milligrams per kilogram body weight.

The first way of expressing doses has the advantage of permitting comparison of the sterilizing effect of the *same* amount of arsenic in three different forms.

It will be noted that with all three drugs the sterilizing efficiency increases with an increase in the dose. The results obtained with the smaller doses are somewhat inconsistent, but this is easily explained by the fact that only a small number of animals were used in the lower range. This range includes the so-called *therapeutic dose*, the dose which causes the rapid disappearance of the spirochetes from the lesions and the healing of the chancres without, however, sterilizing

the animals. It is about 2 cubic centimeters of a 0.01 arsenic equivalent solution per kilo for all three drugs. Some of the animals treated with the next two higher doses (3 to 4 c. c., respectively) are sterilized by the treatment. In order to sterilize *all*, or practically all, animals, 10 cubic centimeters must be used. Of the 20 animals treated with this dose only 1 treated with arsphenamine failed to be sterilized. We do not attribute any particular significance to this exception, however, and we feel unjustified in assigning arsphenamine a lower efficiency for this reason. We may therefore consider 10 cubic centimeters as the *minimal sterilizing dose* for arsphenamine, neoarsphenamine, and sulpharsphenamine. As this dose is doubled (20 c. c.) it is seen that every one of the 22 animals is sterilized.

A single dose treatment is a severe test of the sterilizing efficiency because the drug has to penetrate the rather large chancre and must kill off all spirochetes therein before elimination has reduced the drug concentration within the body below the minimal effective parasiticidal concentration.

It is interesting to note that the sterilizing efficiency of sulpharsphenamine injected intramuscularly is just as good as that of arsphenamine and neoarsphenamine given intravenously.

The above-mentioned facts are of fundamental importance for a correct understanding of the chemotherapy of syphilitic infection for several reasons.

First. There can no longer be any doubt that the essential relation of size of dose to sterilizing effect, a relationship which had previously been shown to exist in the case of these arsenicals in experimental trypanosomiasis, also holds good in experimental syphilis. The contention of the few authors who still persist in attributing the action of these arsenicals in the treatment of syphilis as being essentially due to a stimulation of the production of immune bodies, rather than to a direct action of the drugs (or more correctly, their metabolism products, arsenoxides) on the parasites, is therefore conclusively refuted. How otherwise could this well-defined sterilizing dose be explained than that a definite minimum concentration of the arsenical is needed to kill off every one of the parasites in the infected host.

Second. A few of the animals treated with doses smaller than the minimum sterilizing dose are sterilized. This finding agrees with similar observations made in the treatment of experimental trypanosomiasis and is best explained by the assumption that in these animals the fate of the drugs in the body (retention, distribution, and metabolism) from a quantitative standpoint was especially favorable for the production of the full parasiticidal action.

Third. For all practical purposes it must be conceded that the minimal sterilizing dose of the three drugs is the same in terms of

arsenic used; or, in other words, *the sterilizing action of these drugs depends entirely on the amount of arsenic injected, irrespective of whether this arsenic is in the form of arsphenamine, neoarsphenamine, or sulpharsphenamine.* Parenthetically it may be added that the minimal sterilizing dose expressed in terms of milligrams per kilo is of course not the same, as all three drugs, and especially neoarsphenamine and sulpharsphenamine, contain a considerable and variable amount of impurities. On the weight basis the minimal sterilizing doses per kilo body weight are as follows: Arsphenamine, 23.5 milligrams; neoarsphenamine, 40 milligrams; and sulpharsphenamine, 35 milligrams. It is important now to call attention to the fact that the sterilizing efficiency of these three drugs requires for its final appraisal data on the ratio of the maximal tolerated dose to the minimal sterilizing dose. This relation we propose to designate as the *index of sterilization.* It is obvious that a large index of sterilization indicates a large margin of safety, and, vice versa, a small index of sterilization, a small margin of safety. The data bearing on this point are found in Table 3. They show that the index of sterilization is most favorable in the case of sulpharsphenamine, less so in the case of neoarsphenamine and least with arsphenamine.

TABLE 3.—*Maximal tolerated dose, minimal sterilizing dose and index of sterilization*

[The doses are expressed in numbers of cubic centimeters of a 0.01 arsenic equivalent solution per kilo. The figures in parentheses give the doses in terms of milligrams per kilo]

	Arsphenamine	Neoarsphenamine	Sulpharsphenamine
Maximal tolerated dose	27 (63)	40 (163)	60 (208)
Minimal sterilizing dose	10 (23 5)	10 (40)	10 (35)
Index of sterilization	2.7	4	6

Fourth. The present data furthermore indicate clearly that syphilitic rabbits can be sterilized even by a single large dose of these drugs at an advanced stage of the disease. This is contrary to the results obtained by means of the reinoculation test as a criterion of sterilization. It may be recalled that Chesney and Kemp (1925) and Voegtlin and Dyer (1925) confirmed earlier observations of Kolle (1922, 1924) in showing that syphilitic rabbits subjected to treatment, under the same conditions as those obtaining in the present work, on reinoculation did not respond with the production of chancres. These workers concluded, contrary to Kolle, that failure to produce chancres on reinoculation of treated rabbits was not conclusive proof that the animals had not been sterilized by the treatment. After all, it can not be emphasized too strongly that the reinoculation test as a criterion of the effect of treatment tells only one thing; i. e., whether or not the testicular tissues are refractory to the production of a chancre; it is *not* an indication as to whether

or not a latent infection has been produced by the reinoculation. The discrepancy between the results obtained by the tissue transfer method and the reinoculation test may be explained by the assumption that adequate treatment of syphilitic rabbits late in the disease permits the animal to develop an abnormally high degree of tissue resistance, so that reinoculation results in a latent infection without primary lesions (asymptomatic infection). It will be recalled that a small percentage of normal, untreated rabbits evidently also possess a sufficient degree of tissue resistance to a primary inoculation, as shown by the fact that they do not develop chancres, though they unquestionably are infected, as can be demonstrated by a positive tissue transfer test. Chesney and Kemp (1925) on the other hand, are inclined to interpret their results by the assumption of a true general immunity to reinfection, this immunity having been established by sterilizing treatment late, but not early, in the disease. At all events, it will be admitted that the correct interpretation of the reinoculation test is an extremely difficult matter, involving, as it does, the still obscure question of immunity to syphilitic infection. We have therefore every reason to regard the tissue transfer test, especially in the form advocated by us, as a far more reliable criterion of sterilization from treatment.

Practical bearing on control of syphilis in man.—There can be no question that the discovery of the arsphenamines has furnished powerful weapons for the control of syphilis. It will also be admitted that the eradication of this disease depends in large measure upon the question as to whether or not syphilitic individuals can be sterilized by treatment at least in early syphilis. For Moore and Keidel (1926) correctly state that "the best method of treatment of paresis, tabes, cardiovascular and visceral syphilis is not the treatment of these conditions, but their prevention by means of thorough early treatment directed against the etiological factor." The difficulty is that so far no method has been devised to determine if a patient has actually been sterilized by treatment. Reinfection is certainly not a practical method and even this criterion must be used very cautiously (Stokes, 1926). The careful work of Moore and Keidel (1926) and Moore and Kemp (1926) dealing with the problem of "clinical cure" of early syphilis is most important, but these workers frankly admit that the question of sterilization is something quite different from clinical cure. And Stokes sums up the present status of this subject thus: "Radical 'cure' is at this day a matter of faith, and a matter of faith it will remain until a full generation of men instead of a decade's worth has sustained the critical review of the microscopic as well as the gross pathologist."[3] It is, therefore, of con-

[3] It is our opinion that the development of a method for the determination of sterilization in man is not so hopeless as may appear at first. It is quite possible that work with the lymph gland transfer method such as carried out by Eberson and Engmann (1921) and modified according to the suggestions of Worms (1926), might lead to a method which could at least be applied to a sufficient number of selected cases in order to determine the sterilizing efficiency of a given plan of treatment.

siderable importance that the fact has been thoroughly established that sterilization is possible in even late *experimental* syphilis, particularly as the work of recent years has shown that the pathology of syphilitic infection in rabbits closely resembles the disease in man with regard to generalization and latency.

Our findings again emphasize the importance of intensive treatment to the point of maximum toleration. The data are also of some value in connection with the long-debated question as to which one of the three arsphenamines has the greatest sterilizing action. There can be no question that in rabbits, taking the results as a whole, there is no difference between the three drugs (arsenic basis), but it must be remembered of course that in the clinical use certain other factors, such as the relative number of toxic reactions (dermatitis, encephalitis, jaundice, etc.), from therapeutic doses must be taken into account.

In recent years a number of authors (see Buschke, 1924 and 1925) have objected to the intensive treatment of syphilis on the ground that the arsphenamines are supposed to destroy immune body formation and thus interfere with sterilization. No satisfactory evidence has been produced in support of this view and the experimental data presented in this paper certainly contradict it. In the case of arsphenamine, for instance, it will be noted that the sterilizing efficiency does *not* decline with an increase of the dose to more than two-thirds of the maximal tolerated dose.

In conclusion, it must again be emphasized that the results described in this paper refer only to experimental syphilis in rabbits and of course are not to be regarded as directly applicable to the clinical use of these arsenicals.

CONCLUSIONS

1. Sterilization of syphilitic rabbits late in the disease can be accomplished by means of a single large dose of either arsphenamine, neoarsphenamine, or sulpharsphenamine.

2. The sterilizing efficiency increases with an increase in the dose and does not decline when the minimal sterilizing dose is exceeded. The data therefore indicate the advisability of intensive treatment and contradict the view that intensive treatment interferes with sterilization on account of its alleged interference with immunity reactions.

3. The minimal sterilizing dose of arsphenamine, neoarsphenamine, and sulpharsphenamine is identical in terms of absolute amount of arsenic. The intramuscular injection of sulpharsphenamine is just as effective as the same amount of arsenic in the form of arsphenamine or neoarsphenamine injected intravenously.

4. The "index of sterilization"—i. e., the ratio of maximal tolerated dose to minimal sterilizing dose—is most favorable in the case of

sulpharsphenamine, less so with neoarsphenamine, and least with arsphenamine.

5. A modification of the tissue transfer test is described, which increases the reliability of this method as a criterion of sterilization from treatment with these drugs.

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PUBLIC HEALTH ENGINEERING ABSTRACTS

Studies on Lactose Fermenting Bacteria. Fred Berry, chief, division of laboratories, Ohio State Department of Health, Columbus, Ohio. *American Journal of Public Health*, vol. 16, No. 7, July, 1926, pp. 700–705.—(Abstract by M. S. Foreman.)

This study is the last of a series of three articles on lactose fermentation. Following are the principal points considered in the present study: First, whether colon group bacteria multiply appreciably in water at high temperatures; second, whether they die off much more rapidly in uniced than in iced samples of water of different sanitary quality; and third, whether the bacterial count either at 20° or 37° C. has much significance when determined on either iced or uniced samples.

Two tables are given which show the comparison of the iced and uniced samples, (1) incubated at 20° and 37° C., and (2) relative percentages of methyl red+ and Voges-Proskauer−, and a third table which compares ice-box stored samples with those kept at room temperature.

The result of this study shows the following: (1) The number of colon group bacteria in samples of ground water did not change materially in the first 48 hours after collection regardless of whether

the samples were iced or kept at ordinary temperatures—samples shipped without ice packing will yield dependable results; (2) the change in total bacterial content was more marked at ordinary than at ice-box temperatures; (3) colon group organisms in natural ground waters at ice-box and ordinary temperatures showed no increase in number, but showed a gradual decline; (4) the results obtained show that the use of uniced containers seems justifiable.

Keeping an Old Filtering Plant Up to Date. W. H. Lovejoy, superintendent of filtration, Louisville (Ky.) Water Co. *Water Works Engineering*, vol. 79, No. 21, November 1, 1926, p. 1403.—(Abstract by William L. Havens.)

This article enumerates some of the troubles experienced in operating the Louisville purification works, this being one of the older filtration plants which lack many of the refinements of modern design. On account of the distribution system being unmetered, the plant is carrying a 60 per cent overload in capacity. Also, because of extreme river conditions and the extreme plant demand, the high turbidity and bacterial content of the raw water have resulted in the use of double coagulation, increased chlorine dosage, lessened filter rates, and the application of copper sulphate. Many of the minor mechanical troubles about the plant have been solved by the local plant operators. In addition, several major improvements have recently been made in an effort to keep the plant up to date. Dry feed alum machines have been installed; the sand and gravel from the filter units have been rewashed, rescreened, and replaced; new filter equipment has been installed; and the settling basins have been cleaned. The author points out the fact that failure to solve the more serious problems, such as those of microorganisms and odors and tastes, is due to the fact that most purification plants do not have sufficient personnel to carry on the necessary research experiments along with the routine laboratory work.

Water Supply and Purification. Committee report presented at the Conference of State Sanitary Engineers, June, 1926. *Engineering and Contracting*, vol. 65, No. 9, September, 1926, pp. 431–432.—(Abstract by C. C. Ruchhoft.)

There has been an increase in the movement of holding conferences on water purification under the auspices of the various State departments of health. Another development has been the increasing recognition by the courts of the liabilities of the owners of both public and private water-supply utilities. In some States the courts have also recognized the responsibility of the owners of water supplies to official State bodies for the proper sanitary protection of the supplies. Among the technical developments of 1925 were the appearance of the Manual of American Water Works Practice and the attention given to the subject of chlorophenol tastes in water supplies.

Researches on Hookworm in China. W. W. Cort, J. B. Grant, N. R. Stoll, and others. *American Journal of Hygiene*, Monographic Series No. 7, October, 1926. (Abstract by D. L. Augustine.)

This is an extensive report of 398 pages on the hookworm situation in China and includes the following articles: (1) Problems and methods of attack, by W. W. Cort, N. R. Stoll, and J. B. Grant; (2) A discussion of certain features of the geography of China in relation to the hookworm problem, by N. R. Stoll and W. W. Cort; (3) Distribution of hookworm infestation and disease in China, as shown by the literature and answers to questionnaires, by W. W. Cort, J. B. Grant, and N. R. Stoll; (4) Significance of hookworm infestation in North China, by J. B. Grant, W. W. Cort, and W. S. Kwei; (5) Hookworm infestation studies in Wuchang, Hupeh, by N. R. Stoll, C. McA. Wassell, and W. S. Kwei; (6) Hookworm survey of hospital in-patients, students, and servants in Soochow, Kiangsu, by N. R. Stoll, H. W. Tseng, and K. H. Li; (7) Factors influencing hookworm infestation in Kwangtung Province, by W. W. Cort, F. Oldt, W. W. Cadbury, and L. N. Jeu; (8) An epidemiologic study of hookworm disease in the mulberry districts of the Yangtze Delta, by W. W. Cort, J. B. Grant, N. R. Stoll, and H. W. Tseng; (9) Rice cultivation and hookworm infestation, by W. W. Cort, J. B. Grant, N. R. Stoll, and H. W. Tseng; (10) The relation of the cultivation of cotton to the spread of hookworm infestation, by J. B. Grant, W. W. Cort, and H. W. Tseng; (11) An experimental study of vegetable cultivation and hookworm infestation, by W. W. Cort; (12) On the economic value of night-soil in China, by N. R. Stoll; (13) Studies on the viability of hookworm eggs in stored night-soil in South China, by F. Oldt; (14) Soochow studies on the viability of hookworm eggs in stored night-soil, by Norman R. Stoll; (15) General summary of results, by W. W. Cort, J. B. Grant, and N. R. Stoll.

The researches reported in this series of papers involve the use of Baemann's apparatus for the isolation of infective hookworm larvæ from soil and the Stoll ova count technique for counting helminth ova in feces. Epidemiologic studies consist of (1) the estimation of the degree of hookworm infestation by the ova count method, (2) the study of soil pollution by surveys, and (3) the determination of the distribution of soil infestation by the examination of soil samples with the isolation apparatus. Careful studies were also conducted on the methods of fertilization of the principal crops of China and the study of soil infestation produced in the cultivation of crops under experimental conditions. The investigation includes both field studies and experimental researches.

Climatic conditions of North China were found not favorable for the spread of hookworm infestation, and there the disease is of no appreciable medical or public-health significance. Hookworm dis-

ease has a wide distribution in Central and South China, but there are only a comparatively few areas where it is one of the major public-health problems. This situation is due to the fact that there is a great variation in the degree to which the use of night-soil on different crops spreads the infestation. Of the two types of night-soil fertilization used in China, (1) dry and (2) wet, the latter is almost universally employed in those parts where climatic conditions are favorable to hookworm dissemination.

Rice cultivation as carried on in China does not spread hookworm infestation. The use of night-soil on rice fields is considered as an important hookworm control measure, as experiments show that fertilization of rice under water with night-soil gives an unfavorable medium for the development of soil infestation. Only a few of a large number of hookworm ova deposited in this environment lived as long as two weeks. Surveys made in areas where the people were almost exclusively engaged in the cultivation of rice showed almost no hookworm infestation.

Surveys of the human population of cotton districts of Nantungchow showed a universal light infestation which was subclinical in character. No evidence was obtained that the cultivation of cotton in China is an important source of hookworm disease.

In the fertilization of vegetable crops in China, the night-soil is usually used very much diluted, so that its application serves for watering as well as for fertilization. It is either poured around the individual plants, along the rows, or scattered over the whole surface of the plot, and is usually applied during the early growth period of the vegetable. Experimental evidence indicated that under most conditions the use of human feces as fertilizer for vegetable crops can be only a slight source of hookworm infestation.

In the silk-producing sections conditions appeared almost ideal for the dissemination of hookworms during the picking of the mulberry leaves. Although it is customary to store night-soil for a considerable period before use, the need of forcing the leaves after the first picking in May to prepare food for the large summer brood of silkworms puts such a strain on the supply of night-soil that almost all that is available is utilized. This insures the presence of a sufficiently large number of viable hookworm eggs to produce concentrated soil infestation, since recently collected night-soil will be used as well as that which has been stored for varying periods. In the next place, in order to insure rapid penetration of the fertilizer into the soil, the ground is usually turned and the clods are broken up. This is done with especial care around each tree, and the night-soil, instead of being spread widely over the field, is poured close to the base of the tree. Often as much as a large bucketful will be divided between three or four trees. The pouring of the

material onto the turned-up soil or its shallow burial actually simulates the culture conditions which we have found to be most satisfactory in the laboratory for obtaining the development of hookworm larvæ. Further, the cultivation, fertilization, and the second picking of the leaves, coming during the early summer rainy season when the ground is almost constantly soaked, insure warm moist conditions for the development of the larvæ. The pickers enter the fields from two weeks to a month after the fertilization, which would be at the peak of the intensity of the soil infestation. The amount of rainfall at this time practically insures that, on some of the days of picking, the soil in the fields will be muddy, when the adhering of the sticky loam soil to the bare feet and the complete soaking through of the flimsy reed sandals which field workers wear, give ideal conditions for the penetration of the larvæ. Finally, the fact that leaves are picked off individually or cut off with scissors at this picking makes it necessary for the pickers to stand for considerable periods of time close to each tree. Although some infestation probably takes place under other conditions and at other times, the evidence from the soil infestation studies and the prevalence of ground itch makes it practically certain that a very large percentage of the infestation comes at this time. Consequently the severity of the hookworm disease in this district is due to the few days' contact each year with the infested mulberry fields during the second picking of the leaves.

This not only shows how the cultivation of mulberry trees may be an important factor in the spread of hookworm disease, but illustrates very definitely as well the factors which operate in the dissemination of hookworm by the use of night-soil as a fertilizer. It also emphasizes the necessity of a careful study of the details of crop cultivation in attempting to define the causes operating in the epidemiology of hookworm disease in any region where the human excrement is returned to the fields as fertilizer. Hookworm disease in China is, therefore, not associated in a general way with the methods of fertilization, but in a particular way with the methods employed in certain crops. The control problem, therefore, is not one of rural sanitation or of attempting to modify the general habits of the farmers in the use of the fertilizers, but must center around attempts to modify the particular methods employed in the use of the fertilizer on the crops particularly implicated.

Experiments have shown that when hookworm ova are present in night-soil and stored according to the "wet method," the number of viable ova present depends on the length of time of storage. Over 95 per cent are killed in about one month during the summer temperatures of the Soochow region, and practical elimination of the ova occurs in an additional month.

The mixture with urine which normally occurs to some extent in the collection of night-soil tends to accelerate the death rate of the ova. Mixing of lime with stored night-soil is a control method of great value. When introduced into storage containers in the ratio of from 1:10 to 1:500 to the total contents, practically all the hookworm ova are rendered incapable of development in from 6 to 12 days.

Hookworm Disease in Cotton Mill Villages of Alabama and Georgia: A Study of the Value of Sanitation in a Soil Province Heavily Infested With Hookworms. D. L. Augustine, *Journal of Industrial Hygiene*, vol. 8, No. 9, September, 1926, pp. 382–391. (Abstract by D. L. Augustine.)

The value of sanitation as a principal factor in hookworm control is estimated by (1) a comparative study of the incidence and intensity of its infestation in sanitated mill villages and in the surrounding unsanitated rural districts from which the mill population is recruited and (2) by a comparative study of individuals of different lengths of mill residence in respect to their hookworm infestation and physical fitness. The disease caused by this parasite was found to be limited to those children of less than three years' residence in the mill village, and the number of light infestations and negative cases increased with the increasing years of residence in the sanitated mill villages.

The mean weight and also the mean hemoglobin were noticeably lower in children of less than three years' residence than in those who had lived in the village for longer periods of time. Normal hemoglobin values were found in children of four years' residence or longer at the cotton mills.

DEATHS DURING WEEK ENDED JANUARY 8, 1927

Summary of information received by telegraph from industrial insurance companies for week ended January 8, 1927, and corresponding week of 1926. (From the Weekly Health Index, January 13, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 8, 1927	Corresponding week, 1926
Policies in force	66, 407, 940	62, 646, 764
Number of death claims	11, 467	12, 931
Death claims per 1,000 policies in force, annual rate	9. 0	10. 8

Deaths from all causes in certain large cities of the United States during the week ended January 8, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, January 13, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 8, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 8, 1927 [2]
	Total deaths	Death rate [1]		Week ended Jan. 8, 1927	Corresponding week, 1926	
Total (68 cities)	8,344	14.7	15.3	898	861	[3] 74
Akron	41			10	11	108
Albany [4]	46	20.0	23.2	3	5	63
Atlanta	93			11	10	
White	47			4	8	
Colored	46			7	2	
Baltimore [4]	267	17.0	17.4	37	24	114
White	199		16.0	21	18	81
Colored	68	([5])	25.4	16	6	249
Birmingham	81	19.6	24.2	12	15	
White	38		20.4	5	8	
Colored	43	([5])	30.2	7	7	
Boston	226	14.9	16.5	22	27	61
Bridgeport	37			6	3	111
Buffalo	257	24.4	16.8	30	20	126
Cambridge	40	16.8	12.0	6	6	107
Camden	32	12.5	16.3	3	6	52
Canton	13	6.0	11.9	1	5	24
Chicago [4]	865	14.5	12.6	92	73	80
Cincinnati	160	20.2	21.4	17	11	106
Cleveland	213	11.3	13.0	24	30	64
Columbus	72	12.9	14.8	7	6	65
Dallas	56	14.0	14.4	4	7	
White	42		12.7	3	6	
Colored	14	([5])	25.1	1	1	
Dayton	54	15.6	11.8	4	7	66
Denver	104	18.7	13.5	8	5	
Des Moines	25	8.7	16.8	4	2	67
Detroit	357	14.0	12.7	70	59	111
Duluth	15	6.8	11.1	2	5	43
El Paso	51	23.3	20.1	11	6	
Erie	25			2	4	39
Fall River [4]	24	9.4	13.1	5	5	88
Flint	29	10.6	8.8	7	5	114
Fort Worth	41	13.0	11.8	4	7	
White	35		11.2	4	6	
Colored	6	([5])	16.5	0	1	
Grand Rapids	33	10.8	13.4	1	2	15
Houston	71			9	10	
White	47			6	9	
Colored	24			3	1	
Indianapolis	104	14.5	14.5	16	7	126
White	89		13.4	13	6	117
Colored	15	([5])	22.5	3	1	183
Jersey City	80	13.0	14.1	9	11	67
Kansas City, Kans.	40	17.8	17.8	5	1	97
White	25		15.1	3	1	67
Colored	15	([5])	30.5	2	0	304
Kansas City, Mo.	102	13.9	12.2	17	7	
Los Angeles	329			23	26	60
Louisville	82	13.4	14.4	9	10	77
White	66		13.0	8	9	78
Colored	16	([5])	22.2	1	1	70
Lowell	39	18.4	21.3	4	8	77
Lynn	34	16.9	17.5	4	1	106
Memphis	62	18.1	20.6	8	10	
White	30		16.5	4	5	
Colored	32	([5])	28.1	4	5	
Milwaukee	112	11.1	13.9	26	22	121
Minneapolis	115	13.6	12.9	8	12	45

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 64 cities.
[4] Deaths for week ended Friday, Jan. 7, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended January 8, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Jan. 8, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 8, 1927
	Total deaths	Death rate		Week ended Jan. 8, 1927	Corresponding week, 1926	
Nashville [4]	59	22.3	18.3	6	8	
New Bedford	33	14.4	12.6	3	5	52
New Haven	41	11.6	16.6	5	5	70
New Orleans	153	18.8	22.5	15	20	
White	75		16.0	3	8	
Colored	78	(5)	41.1	12	12	
New York	1,513	13.2	15.1	138	149	57
Bronx boro	183	10.3	11.2	11	12	35
Brooklyn boro	509	11.7	12.9	45	55	47
Manhattan boro	620	17.8	20.3	67	62	79
Queens boro	149	9.6	11.8	13	15	58
Richmond boro	52	18.4	20.4	2	5	37
Newark, N. J	145	16.2	13.4	12	8	59
Norfolk	27	7.9	11.1	0	4	0
White	13		8.5	0	1	0
Colored	14	(5)	15.7	0	3	0
Oakland	86	10.8	16.2	3	6	35
Oklahoma City	40			1	3	
Omaha	70	16.7	14.0	4	6	44
Paterson	37	13.4	16.4	3	4	53
Philadelphia	535	13.7	17.3	60	68	80
Pittsburgh	235	19.1	19.6	29	27	101
Portland, Oreg	69			4	2	42
Providence	82	15.2	17.8	8	9	68
Richmond	56	15.2	18.2	4	7	53
White	36		14.8	4	3	81
Colored	20	(5)	26.5	0	4	0
Rochester	70	11.3	13.8	4	8	34
St. Louis	237	14.7	14.3	18	14	
St. Paul	63	13.1	14.3	1	6	9
Salt Lake City [4]	34	13.0	12.9	7	2	106
San Antonio	67	16.6	14.2	11	8	
San Diego	41	18.6	19.4	7	1	140
San Francisco	205	18.6	21.5	4	9	25
Schenectady	29	16.3	16.3	2	0	60
Seattle	78			3	9	31
Somerville	21	10.7	15.1	3	1	108
Spokane	37	17.7	13.9	2	2	50
Springfield, Mass	41	14.5	12.6	7	6	108
Syracuse	61	16.1	13.5	8	4	103
Tacoma	32	15.6	13.8	2	4	47
Toledo	80	13.7	15.7	8	13	77
Trenton	50	19.0	18.7	8	2	139
Utica	41	20.8	16.2	2	3	46
Washington, D. C	165	15.9	17.6	15	8	87
White	103			10	7	84
Colored	62	(5)		5	1	92
Waterbury	23			3	4	71
Wilmington, Del	45	18.6	14.3	3	5	74
Worcester	57	15.2	18.4	5	4	69
Yonkers	22	9.6	12.1	2	3	45
Youngstown	43	13.3	10.7	9	5	126

[4] Deaths for week ended Friday, Jan. 7, 1927.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 30, Dallas 15, Fort Worth 14, Houston 25, Indianapolis, 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended January 15, 1927

ALABAMA	Cases
Chicken pox	64
Diphtheria	72
Influenza	99
Lethargic encephalitis	1
Malaria	8
Measles	75
Mumps	5
Ophthalmia neonatorum	1
Pneumonia	83
Scarlet fever	18
Smallpox	78
Tuberculosis	54
Typhoid fever	7
Typhus fever	1
Whooping cough	55

ARIZONA	Cases
Chicken pox	38
Diphtheria	4
Measles	7
Mumps	2
Pneumonia	5
Poliomyelitis	1
Scarlet fever	12
Tuberculosis	40
Typhoid fever	1
Whooping cough	4

ARKANSAS	Cases
Cerebrospinal meningitis	1
Chicken pox	33
Diphtheria	12
Influenza	121
Malaria	21
Measles	11
Mumps	15
Pellagra	4
Scarlet fever	8
Smallpox	4

ARKANSAS—continued	Cases
Tuberculosis	1
Typhoid fever	11
Whooping cough	31

CALIFORNIA	Cases
Cerebrospinal meningitis:	
Azusa	1
Los Angeles	1
San Francisco	1
Chicken pox	416
Diphtheria	152
Influenza	41
Leprosy—Los Angeles	1
Lethargic encephalitis—Los Angeles	1
Measles	1,737
Mumps	216
Poliomyelitis:	
Long Beach	1
Los Angeles	1
Napa	1
Scarlet fever	280
Smallpox:	
Sonoma County	12
Scattering	11
Tuberculosis	123
Typhoid fever	14
Whooping cough	83

COLORADO	Cases
Cerebrospinal meningitis	1
Chicken pox	11
Diphtheria	5
Influenza	4
Measles	15
Mumps	3
Pneumonia	15
Scarlet fever	67
Smallpox	9
Tuberculosis	26
Vincent's angina	1

CONNECTICUT

	Cases
Cerebrospinal meningitis	2
Chicken pox	136
Diphtheria	31
German measles	5
Influenza	24
Measles	17
Mumps	49
Pneumonia (broncho)	34
Pneumonia (lobar)	32
Scarlet fever	101
Septic sore throat	4
Trachoma	1
Tuberculosis (all forms)	33
Typhoid fever	1
Whooping cough	47

DELAWARE

Diphtheria	8
Influenza	1
Measles	3
Pneumonia	2
Scarlet fever	47
Tuberculosis	6
Whooping cough	2

FLORIDA

Chicken pox	28
Diphtheria	30
Malaria	1
Measles	6
Mumps	11
Pneumonia	9
Poliomyelitis	2
Scarlet fever	16
Smallpox	40
Tuberculosis	10
Typhoid fever	15
Whooping cough	10

GEORGIA

Chicken pox	22
Diphtheria	32
Hookworm disease	2
Influenza	107
Malaria	6
Measles	56
Mumps	15
Pellagra	4
Pneumonia	27
Scarlet fever	24
Septic sore throat	16
Smallpox	71
Tuberculosis	18
Typhoid fever	4
Whooping cough	28

IDAHO

Chicken pox	21
Diphtheria	2
Measles	77
Mumps	16
Scarlet fever	30
Smallpox	6
Tuberculosis	1

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	3
Morgan County	1
Chicken pox	497
Diphtheria	136
Influenza	83
Lethargic encephalitis:	
Cook County	2
Effingham County	1
Livingston County	1
Measles	1,137
Mumps	206
Pneumonia	445
Poliomyelitis—Knox County	1
Scarlet fever	334
Smallpox	27
Tuberculosis	299
Typhoid fever	8
Whooping cough	153

INDIANA

Anthrax	6
Chicken pox	182
Diphtheria	65
Influenza	139
Measles	90
Mumps	1
Pneumonia	16
Scarlet fever	210
Smallpox	129
Tuberculosis	32
Typhoid fever	3
Whooping cough	51

IOWA

Chicken pox	64
Diphtheria	36
Measles	199
Mumps	25
Pneumonia	3
Scarlet fever	75
Smallpox	16
Tuberculosis	4
Whooping cough	6

KANSAS

Cerebrospinal meningitis:	
Copeland	1
Independence	1
Chicken pox	189
Diphtheria	17
German measles	6
Influenza	22
Malaria	1
Measles	137
Mumps	19
Pneumonia	46
Poliomyelitis—New Salem	1
Ptomaine poisoning	1
Scarlet fever	134
Smallpox:	
Topeka	16
Scattering	24
Tetanus	2
Tuberculosis	34
Typhoid fever	8
Whooping cough	28

LOUISIANA

	Cases
Diphtheria	28
Influenza	21
Malaria	10
Measles	83
Pneumonia	34
Poliomyelitis	1
Scarlet fever	8
Smallpox	7
Tuberculosis	30
Typhoid fever	8
Whooping cough	6

MAINE

	Cases
Chicken pox	66
Diphtheria	1
German measles	1
Influenza	5
Measles	201
Mumps	12
Pneumonia	22
Scarlet fever	37
Septic sore throat	2
Tuberculosis	3
Typhoid fever	1
Vincent's angina	2
Whooping cough	86

MARYLAND[1]

	Cases
Cerebrospinal meningitis	1
Chicken pox	169
Diphtheria	75
Influenza	96
Measles	20
Mumps	16
Pneumonia (broncho)	62
Pneumonia (lobar)	62
Rat bite fever	1
Scarlet fever	106
Septic sore throat	1
Tetanus	1
Tuberculosis	67
Typhoid fever	10
Whooping cough	105

MASSACHUSETTS

	Cases
Actinomycosis	1
Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	425
Conjunctivitis (suppurative)	5
Diphtheria	109
German measles	13
Influenza	12
Lethargic encephalitis	2
Measles	197
Mumps	357
Ophthalmia neonatorum	37
Pellagra	1
Pneumonia (lobar)	178
Poliomyelitis	2
Scarlet fever	495
Septic sore throat	3
Tetanus	1
Trachoma	2
Tuberculosis (pulmonary)	104

[1] Week ended Friday.

MASSACHUSETTS—continued

	Cases
Tuberculosis (other forms)	36
Typhoid fever	12
Whooping cough	141

MICHIGAN

	Cases
Diphtheria	139
Measles	91
Pneumonia	216
Scarlet fever	395
Smallpox	45
Tuberculosis	43
Typhoid fever	11
Whooping cough	130

MINNESOTA

	Cases
Chicken pox	247
Diphtheria	36
Dysentery	1
Influenza	3
Measles	130
Pneumonia	1
Scarlet fever	254
Smallpox	4
Tuberculosis	56
Typhoid fever	5
Whooping cough	31

MISSISSIPPI

	Cases
Cerebrospinal meningitis	1
Diphtheria	21
Scarlet fever	14
Smallpox	9
Typhoid fever	2

MISSOURI

(Exclusive of Kansas City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	86
Diphtheria	53
Influenza	2
Measles	171
Pellagra	1
Pneumonia	8
Poliomyelitis	1
Scarlet fever	119
Smallpox	4
Tetanus	2
Tuberculosis	29
Typhoid fever	6
Whooping cough	28

MONTANA

	Cases
Cerebrospinal meningitis	6
Chicken pox	17
Diphtheria	7
German measles	3
Measles	67
Mumps	15
Scarlet fever	141
Smallpox	6
Trachoma	2
Tuberculosis	1
Whooping cough	5

NEBRASKA

	Cases
Chicken pox	61
Diphtheria	6
German measles	13
Influenza	5
Measles	73
Mumps	36
Pneumonia	3
Scarlet fever	52
Smallpox	23
Tuberculosis	2
Typhoid fever	1
Whooping cough	18

NEW JERSEY

	Cases
Cerebrospinal meningitis	1
Chicken pox	441
Diphtheria	134
Influenza	28
Measles	62
Pneumonia	179
Poliomyelitis	1
Scarlet fever	263
Trachoma	1
Typhoid fever	5
Whooping cough	184

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	577
Diphtheria	112
Dysentery	1
German measles	146
Lethargic encephalitis	1
Measles	801
Mumps	319
Pneumonia	353
Poliomyelitis	1
Scarlet fever	281
Septic sore throat	13
Smallpox	16
Typhoid fever	16
Vincent's angina	22
Whooping cough	248

NORTH CAROLINA

	Cases
Chicken pox	163
Diphtheria	43
German measles	6
Measles	161
Scarlet fever	66
Smallpox	99
Typhoid fever	5
Whooping cough	389

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Canadian County	1
Chicken pox	37
Diphtheria	34
Influenza	274
Malaria	10
Measles	37
Pneumonia	97
Scarlet fever	58

OKLAHOMA—continued

	Cases
Smallpox	31
Typhoid fever	11
Whooping cough	13

OREGON

	Cases
Cerebrospinal meningitis	5
Chicken pox	51
Diphtheria	19
Influenza	23
Measles	55
Mumps	30
Pneumonia	[2] 9
Scarlet fever	80
Septic sore throat	2
Smallpox.	
Klamath County	17
Scattering	9
Tuberculosis	[2] 3
Typhoid fever	9
Whooping cough	4

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Philadelphia	2
Chicken pox	978
Diphtheria	213
German measles	40
Impetigo contagiosa	21
Measles	860
Mumps	203
Ophthalmia—Philadelphia	2
Pneumonia	93
Poliomyelitis—Luzerne County	1
Scabies	13
Scarlet fever	508
Tetanus—Pittsburgh	1
Tuberculosis	103
Typhoid fever	40
Whooping cough	333

RHODE ISLAND

	Cases
Chicken pox	9
Diphtheria	16
German measles	3
Measles	2
Mumps	7
Ophthalmia neonatorum	1
Scarlet fever	14
Tuberculosis	6
Typhoid fever	1
Whooping cough	10

SOUTH CAROLINA

	Cases
Chicken pox	119
Dengue	4
Diphtheria	21
Hookworm disease	13
Influenza	914
Malaria	90
Measles	49
Paratyphoid fever	4
Pellagra	22
Poliomyelitis	2
Scarlet fever	12
Smallpox	16
Tuberculosis	43
Typhoid fever	12
Whooping cough	92

[2] Deaths.

SOUTH DAKOTA

	Cases
Chicken pox	17
Measles	20
Mumps	1
Pneumonia	8
Scarlet fever	35
Smallpox	3
Whooping cough	4

TENNESSEE

	Cases
Cerebrospinal meningitis—Nashville	1
Chicken pox	81
Diphtheria	39
Influenza	83
Malaria	5
Measles	136
Mumps	3
Pellagra	5
Pneumonia	44
Scarlet fever	51
Smallpox	13
Tetanus	1
Trachoma	1
Tuberculosis	23
Typhoid fever	21
Whooping cough	67

TEXAS

	Cases
Chicken pox	41
Diphtheria	76
Influenza	408
Leprosy	1
Measles	19
Mumps	18
Pneumonia	22
Scarlet fever	76
Smallpox	406
Tuberculosis	39
Typhoid fever	10
Whooping cough	17

UTAH

	Cases
Chicken pox	55
Diphtheria	8
Measles	491
Mumps	34
Pneumonia	10
Scarlet fever	17
Smallpox	3
Whooping cough	4

VERMONT

	Cases
Chicken pox	37
Diphtheria	2
Measles	91
Mumps	27
Scarlet fever	3
Whooping cough	35

WASHINGTON

	Cases
Cerebrospinal meningitis	8
Chicken pox	155
Diphtheria	21
German measles	62
Measles	361
Mumps	44
Pneumonia	5
Scarlet fever	116
Smallpox	61
Tuberculosis	23
Typhoid fever	4
Whooping cough	19

WEST VIRGINIA

	Cases
Cerebrospinal meningitis—Raleigh County	1
Chicken pox	123
Diphtheria	39
Influenza	61
Measles	98
Scarlet fever	81
Smallpox	4
Tuberculosis	9
Typhoid fever	8
Whooping cough	122

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	4
Chicken pox	117
Diphtheria	23
German measles	1
Lethargic encephalitis	1
Measles	51
Mumps	33
Pneumonia	23
Scarlet fever	48
Smallpox	1
Tuberculosis	31
Whooping cough	67
Scattering.	
Cerebrospinal meningitis	2
Chicken pox	262
Diphtheria	20
German measles	5
Influenza	35
Measles	763
Mumps	128
Pneumonia	23
Poliomyelitis	1
Scarlet fever	154
Smallpox	28
Trachoma	1
Tuberculosis	11
Typhoid fever	4
Whooping cough	91

WYOMING

	Cases
Cerebrospinal meningitis:	
Hot Springs County	2
Washakie County	1
Chicken pox	8
Diphtheria	5
German measles	11
Measles	66
Pneumonia (lobar)	1
Scarlet fever	35

Reports for Week Ended January 8, 1927

DISTRICT OF COLUMBIA	Cases
Chicken pox	49
Diphtheria	20
Influenza	2
Measles	2
Pellagra	1
Pneumonia	50
Scarlet fever	28
Tuberculosis	23
Whooping cough	10

NORTH DAKOTA	Cases
Chicken pox	16
Diphtheria	7
German measles	1
Measles	151
Mumps	1
Pneumonia	15
Scarlet fever	88
Smallpox	10
Trachoma	4
Tuberculosis	4
Typhoid fever	1
Whooping cough	5

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1926										
Arkansas	0	39	310	281	15	21	1	64	3	64
Hawaii Territory	0	33	7		63		0	1	0	8
December, 1926										
Arizona	1	20			49	1	0	39	1	4
Connecticut	2	122	47		225		2	288	0	8
Georgia	2	172	229	61	79	5	0	103	190	28
Massachusetts	15	505	57		358		8	1,539	0	94
Michigan	0	590	27		412		5	1,212	81	24
North Dakota	0	37			916		0	248	62	1
Tennessee	7	210	283	24	83	12	2	270	32	156

November, 1926	Cases
Chicken pox:	
Arkansas	55
Hawaii Territory	4
Conjunctivitis (follicular): Hawaii Territory	500
Hookworm disease:	
Arkansas	6
Hawaii Territory	14
Leprosy: Hawaii Territory	6
Mumps: Arkansas	23
Ophthalmia neonatorum: Arkansas	1
Paratyphoid fever: Arkansas	3
Tetanus: Hawaii Territory	1
Trachoma:	
Arkansas	4
Hawaii Territory	285
Whooping cough:	
Arkansas	145
Hawaii Territory	1

December, 1926	Cases
Anthrax: Massachusetts	2
Chicken pox:	
Arizona	34
Connecticut	566
Georgia	112
Massachusetts	1,718
Michigan	1,181
North Dakota	139
Tennessee	253
Conjunctivitis (infectious):	
Connecticut	3
Georgia	1
Dengue: Georgia	2
Dysentery:	
Georgia	4
Tennessee	2
German measles:	
Connecticut	10
Massachusetts	46
North Dakota	21
Hookworm disease: Georgia	37
Lead poisoning: Massachusetts	5
Lethargic encephalitis:	
Connecticut	4
Massachusetts	3
Michigan	20
Ophthalmia neonatorum: Massachusetts	134
Mumps:	
Arizona	5
Connecticut	61
Georgia	17
Massachusetts	810
Michigan	183
North Dakota	37
Tennessee	15
Paratyphoid fever:	
Arizona	4
Georgia	2
Tennessee	2
Rabies in animals: Connecticut	7

	Cases
Rabies in man: Tennessee	2
Septic sore throat:	
Connecticut	10
Georgia	13
Massachusetts	18
Michigan	20
Tetanus:	
Georgia	3
Massachusetts	2
Trachoma:	
Arizona	11
Connecticut	1
Massachusetts	4
North Dakota	70
Trichinosis:	
Connecticut	1
Massachusetts	1
Typhus fever: Georgia	6
Whooping cough:	
Arizona	15
Connecticut	163
Georgia	13
Massachusetts	601
Michigan	512
North Dakota	19
Tennessee	251

RODENT PLAGUE AT LOS ANGELES, CALIF.

A rat caught December 11, 1926, at 3205 South Main Street, Los Angeles, Calif., proved positive for plague.

The last previous plague-infected rat encountered in Los Angeles was on November 6, 1925. Rodent destruction has been carried out energetically and continuously from that date until the present time and will be continued. The number of rats examined in the laboratory has averaged more than 500 per week during the past two years of plague-control work.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended January 1, 1927, 41 States reported 1,967 cases of diphtheria. For the week ended January 2, 1926, the same States reported 1,586 cases of this disease. Ninety-eight cities, situated in all parts of the country and having an aggregate population of more than 30,160,000, reported 1,028 cases of diphtheria for the week ended January 1, 1927. Last year for the corresponding week they reported 749 cases. The estimated expectancy for these cities was 1,216 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-seven States reported 5,853 cases of measles for the week ended January 1, 1927, and 7,426 cases of this disease for the week ended January 2, 1926. Ninety-eight cities reported 1,295, cases of measles for the week this year, and 3,480 cases last year.

Poliomyelitis.—The health officers of 42 States reported 17 cases of poliomyelitis for the week ended January 1, 1927. The same States reported 29 cases for the week ended January 2, 1926.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty-one States—this year, 4,374 cases; last year, 3,608 cases; 98 cities—this year, 1,547 cases; last year, 1,274 cases; estimated expectancy, 1,113 cases.

Smallpox.—For the week ended January 1, 1927, 41 States reported 734 cases of smallpox. Last year for the corresponding week they reported 456 cases. Ninety-eight cities reported smallpox for the week as follows: 1927, 68 cases; 1926, 135 cases; estimated expect-

ancy, 74 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—Three hundred and thirty-eight cases of typhoid fever were reported for the week ended January 1, 1927, by 41 States. For the corresponding week of 1926, the same States reported 321 cases of this disease. Ninety-eight cities reported 69 cases of typhoid fever for the week this year and 55 cases for the corresponding week last year. The estimated expectancy for these cities was 54 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 92 cities, with a population of more than 29,400,000, as follows: 1927, 1,019 deaths; 1926, 1,108 deaths.

City reports for week ended January 1, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	33	2	1	0	0	1	1	6
New Hampshire:									
Concord	22,546	0	0	0	0	0	38	0	0
Manchester	83,097	0	3	1	0	0	0	0	1
Vermont:									
Barre	10,008	1	0	0	0	0	16	0	0
Burlington	24,089	1	0	1	0	0	0	1	3
Massachusetts:									
Boston	779,620	85	66	31	4	2	21	46	30
Fall River	128,993	2	5	3	1	1	0	8	2
Springfield	112,065	6	4	4	0	0	0	2	2
Worcester	190,757	12	5	7	0	0	0	9	7
Rhode Island:									
Pawtucket	69,760	1	2	0	0	0	0	0	3
Providence	267,918	0	10	11	2	1	1	0	5
Connecticut:									
Bridgeport	(1)	3	9	9	3	1	1	1	4
Hartford	160,197	--------	8	--------	--------	--------	--------	--------	--------
New Haven	178,927	20	4	0	0	0	0	0	10
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	41	24	14	--------	0	2	1	13
New York	5,873,356	185	228	174	60	29	7	124	208
Rochester	316,786	10	11	8	--------	1	2	2	3
Syracuse	182,003	11	9	3	--------	0	6	0	5
New Jersey:									
Camden	128,642	0	5	27	0	0	2	0	2
Newark	452,513	20	19	14	12	0	1	15	23
Trenton	132,020	0	8	3	1	0	0	0	5
Pennsylvania:									
Philadelphia	1,979,364	114	81	84	--------	7	9	19	70
Pittsburgh	631,563	34	26	16	--------	5	14	0	28
Reading	112,707	11	5	0	--------	0	1	4	3

[1] No estimate made.

City reports for week ended January 1, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	20	14	11	1	3	0	26	20
Cleveland	936,485	97	41	69	1	0	5	2	33
Columbus	279,836	8	5	6	0	2	1	0	6
Toledo	287,380	49	13	9	0	3	4	0	9
Indiana:									
Fort Wayne	97,846	5	5	7	0	0	6	0	2
Indianapolis	358,819	53	13	13	0	0	4	0	12
South Bend	80,091	4	1	0	0	0	12	0	3
Terre Haute	71,071	1	2	8	0	1	1	0	1
Illinois:									
Chicago	2,995,239	93	136	65	15	7	270	37	60
Peoria	81,564	0	1	1	0	0	43	4	4
Springfield	63,923	20	2	1	1	1	47	0	4
Michigan:									
Detroit	1,245,824	58	70	66	3	4	0	14	40
Flint	130,316	7	10	8	0	0	1	0	5
Grand Rapids	153,698	6	5	0	0	1	1	0	2
Wisconsin:									
Kenosha	50,891	15	2	0	0	0	54	3	0
Madison	46,385	28	2	1	0	0	3	0	0
Milwaukee	509,192	44	23	23	3	3	30	11	8
Racine	67,707	13	3	6	0	0	0	5	0
Superior	39,671	--------	0	--------	--------	--------	--------	--------	--------
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	3	2	0	0	0	2	0	5
Minneapolis	425,435	135	20	18	0	0	1	0	6
St. Paul	246,001	17	17	6	0	1	1	0	10
Iowa:									
Davenport	52,469	3	1	1	0	--------	10	0	--------
Des Moines	141,441	0	5	5	0	--------	0	0	--------
Sioux City	76,411	5	2	4	0	--------	1	1	--------
Waterloo	36,771	17	0	0	0	--------	0	0	--------
Missouri:									
Kansas City	367,481	21	13	5	2	2	7	0	19
St. Joseph	78,342	4	4	0	0	0	0	0	3
St. Louis	821,543	25	53	47	1	0	5	13	--------
North Dakota:									
Fargo	26,403	2	0	0	0	0	1	0	0
South Dakota:									
Aberdeen	15,036	8	0	0	0	--------	0	0	--------
Sioux Falls	30,127	0	1	1	0	--------	0	0	--------
Nebraska:									
Lincoln	60,941	7	2	6	0	0	2	0	5
Omaha	211,768	13	5	0	0	0	11	4	6
Kansas:									
Topeka	55,411	--------	2	--------	--------	--------	--------	--------	--------
Wichita	88,367	22	6	1	0	0	0	0	5
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	3	0	0	0	0	0	6
Maryland:									
Baltimore	796,296	61	33	34	23	6	8	5	36
Cumberland	33,741	0	1	0	0	0	0	0	0
Frederick	12,035	0	0	1	0	0	0	0	1
District of Columbia:									
Washington	497,906	43	18	20	0	0	1	0	14
Virginia:									
Lynchburg	30,395	8	1	3	0	1	0	0	1
Norfolk	(1)	2	3	4	0	0	2	7	3
Richmond	186,403	6	8	4	0	1	50	1	7
Roanoke	58,208	0	2	1	0	0	1	0	5
West Virginia:									
Charleston	49,019	17	1	2	0	0	1	0	2
Wheeling	56,208	5	2	2	0	0	0	0	2
North Carolina:									
Raleigh	30,371	7	1	1	0	0	1	0	1
Wilmington	37,061	3	0	1	0	0	0	1	0
Winston-Salem	69,031	4	1	1	0	0	1	0	2

[1] No estimate made.

City reports for week ended January 1, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
South Carolina:									
Charleston	73,125	0	1	1	22	1	0	0	4
Columbia	41,225	1	1	0	0	0	2	0	0
Greenville	27,311	3	0	0	0	0	0	0	2
Georgia:									
Atlanta	(1)	8	4	17	23	0	23	1	9
Brunswick	16,809	1	0	0	0	0	0	1	0
Savannah	93,134	0	1	0	12	0	1	0	2
Florida:									
Miami	69,754	1		3	0	0	0	0	5
St. Petersburg	26,847		1			0			2
Tampa	94,743	2	1	1	0	0	5	0	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	1	1	2	0	0	0	0	0
Louisville	305,935	20	9	7	1	1	1	0	12
Tennessee:									
Memphis	174,533	9	6	6	0	0	6	0	7
Nashville	136,220	0	3	2	0	2	0	0	5
Alabama:									
Birmingham	205,670	13	3	16	7	2	7	9	10
Mobile	65,955	1	1	1	0	0	1	0	3
Montgomery	46,481	3	1	2	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	1	2	1	0		0	0	
Little Rock	74,216	0	1	1	0		1	0	2
Louisiana:									
New Orleans	414,493	1	14	9	1	2	0	0	10
Shreveport	57,857	0	2	0	0	0	0	2	0
Oklahoma:									
Oklahoma City	(1)	0	2	3	10	0	0	0	3
Texas:									
Dallas	194,450	1	10	22	1	1	2	0	8
Galveston	48,375	0	1	0	0	0	0	0	5
Houston	164,954	1	4	13	0	0	0	0	3
San Antonio	198,069	0	3	6	0	0	0	0	6
MOUNTAIN									
Montana:									
Billings	17,971	2	0	0	0	0	15	0	0
Great Falls	29,883	2	1	0	0	0	1	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	1	1	0	0	0	0	1	1
Idaho:									
Boise	23,042	2	0	0	0	0	7	0	0
Colorado:									
Denver	280,911	12	11	9		4	98	0	12
Pueblo	43,787	8	3	1	0	1	0	0	5
New Mexico:									
Albuquerque	21,000	0	1	0	0	0	3	1	2
Arizona:									
Phoenix	38,669	0	1	1	0	3	0	0	3
Utah:									
Salt Lake City	130,948	15	3	5	0	0	268	0	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	40	7	6	0		0	27	
Spokane	108,897	15	4	1	0		105	0	
Tacoma	104,455	14	3	4	0	0	1	0	5
Oregon:									
Portland	282,383	9	9	4	1	0	1	0	8
California:									
Los Angeles	(1)	56	38	35	13	0	52	18	45
Sacramento	72,260	3	2	2	0	0	44	7	4
San Francisco	557,530	19	23	10	2	0	58	7	2

[1] No estimate made.

City reports for week ended January 1, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	2	0	0	0	0	0	0	0	0	7	24
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	8
Manchester	1	0	0	0	0	1	0	1	1	0	16
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	3	0
Burlington	0	1	0	0	0	0	0	0	0	8	7
Massachusetts:											
Boston	50	99	0	0	0	15	1	9	0	22	255
Fall River	3	2	0	0	0	2	0	1	0	6	31
Springfield	8	4	0	0	0	0	0	0	0	0	41
Worcester	11	11	0	0	0	2	0	0	0	1	45
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	15
Providence	8	7	0	0	0	2	0	0	0	0	49
Connecticut:											
Bridgeport	7	18	0	0	0	6	0	0	0	0	36
Hartford	8		0				0				
New Haven	9	2	0	0	0	1	0	0	0	1	49
MIDDLE ATLANTIC											
New York:											
Buffalo	24	11	1	0	0	6	2	2	0	14	125
New York	181	292	1	2	0	[1] 114	12	7	3	42	1,602
Rochester	13	16	0	0	0	4	1	1	2	5	72
Syracuse	12	10	0	1	0	1	1	1	0	6	49
New Jersey:											
Camden	4	0	0	0	0	1	0	1	0	0	29
Newark	18	34	0	0	0	13	1	0	0	21	132
Trenton	3	1	0	0	0	4	0	0	0	5	35
Pennsylvania:											
Philadelphia	67	80	0	0	0	32	4	3	1	14	570
Pittsburgh	34	22	1	0	0	5	1	0	0	12	201
Reading	1	5	0	0	0	1	0	0	0	4	22
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	17	0	0	0	7	1	2	0	1	140
Cleveland	33	42	1	2	0	11	2	1	0	4	205
Columbus	10	15	0	0	0	4	0	0	0	7	87
Toledo	14	14	1	0	0	8	0	1	0	24	67
Indiana:											
Fort Wayne	3	3	0	0	0	0	1	0	0	0	17
Indianapolis	9	19	6	7	0	7	0	0	0	11	106
South Bend	4	3	1	1	0	0	0	0	0	0	
Terre Haute	2	6	1	1	0	2	0	0	0	1	22
Illinois:											
Chicago	124	105	1	0	0	40	6	2	0	32	761
Peoria	6	2	1	0	0	0	0	0	0	0	19
Springfield	2	3	1	0	0	2	0	0	0	4	27
Michigan:											
Detroit	87	85	4	0	0	24	2	1	0	44	311
Flint	8	16	0	0	0	0	0	0	0	2	24
Grand Rapids	9	12	0	0	0	2	0	0	0	2	35
Wisconsin:											
Kenosha	1	5	1	0	0	0	0	0	0	5	5
Madison	3	5	0	0	0	0	0	0	0	3	5
Milwaukee	29	22	2	0	0	8	1	0	0	53	122
Racine	6	2	1	0	0	0	0	1	0	2	11
Superior	2		2				0				
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	11	0	0	0	1	0	0	0	0	34
Minneapolis	46	57	8	1	0	4	1	0	0	2	89
St. Paul	23	17	10	0	0	6	0	1	0	11	64
Iowa:											
Davenport	2	6	1	0			0	0		0	
Des Moines	6	4	1	0			0	1		0	
Sioux City	2	5	0	0			0	0		0	
Waterloo	3	0	0	0			0	0		4	

[1] Pulmonary tuberculosis only.

City reports for week ended January 1, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—contd.											
Missouri											
Kansas City	13	21	0	4	0	12	1	0	0	3	131
St Joseph	2	3	0	0	0	1	0	0	0	0	37
St. Louis	35	40	1	1	0	12	2	0	0	12	269
North Dakota.											
Fargo	2	9	0	0	0	0	0	0	0	0	4
South Dakota.											
Aberdeen	0	3	0	0	------	------	0	0	------	0	------
Sioux Falls	2	4	0	0	------	------	0	0	------	0	------
Nebraska:											
Lincoln	2	4	0	0	0	0	0	0	0	0	14
Omaha	5	15	5	3	0	2	1	1	0	0	49
Kansas.											
Topeka	2	------	0	------	------	------	1	------	------	------	------
Wichita	4	10	0	0	0	2	0	0	0	1	21
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	31	0	0	0	1	0	0	0	0	31
Maryland:											
Baltimore	27	28	0	0	0	11	3	7	3	36	275
Cumberland	0	0	0	0	0	1	0	0	0	0	9
Frederick	0	1	0	0	0	1	0	0	0	4	2
District of Columbia:											
Washington	22	23	0	0	0	10	3	5	0	6	138
Virginia:											
Lynchburg	1	3	0	0	0	0	0	0	0	0	11
Norfolk	2	6	0	0	0	1	0	1	0	4	------
Richmond	5	4	0	0	0	2	0	0	0	3	48
Roanoke	1	5	0	1	0	1	0	1	0	0	17
West Virginia:											
Charleston	2	1	0	0	0	2	0	0	0	2	19
Wheeling	1	1	0	0	0	0	0	0	0	3	13
North Carolina:											
Raleigh	1	3	1	0	0	0	0	0	0	6	9
Wilmington	0	1	0	0	0	0	0	0	0	2	10
Winston-Salem	2	2	1	0	0	1	0	0	0	17	12
South Carolina:											
Charleston	0	0	0	0	0	1	0	0	0	0	26
Columbia	0	2	0	0	0	0	0	0	0	0	------
Greenville	0	0	0	1	0	0	0	0	0	3	7
Georgia:											
Atlanta	4	13	1	18	0	3	0	1	0	11	73
Brunswick	0	0	0	0	0	0	0	0	0	0	5
Savannah	0	2	0	1	0	5	1	3	0	0	28
Florida:											
Miami	------	1	------	0	0	3	------	0	0	0	41
St. Petersburg	0	------	0	------	0	1	0	------	0	------	21
Tampa	0	2	0	1	0	1	0	0	0	0	19
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	0	0	0	0	2	0	0	0	0	23
Louisville	5	10	0	0	0	1	0	2	0	21	102
Tennessee.											
Memphis	4	13	1	5	0	6	0	0	0	5	68
Nashville	3	5	1	0	0	3	0	0	1	1	41
Alabama:											
Birmingham	4	5	1	3	0	5	0	1	0	6	85
Mobile	0	1	1	1	0	0	0	1	0	0	26
Montgomery	0	0	0	0	0	0	0	0	0	0	------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	4	0	0	------	------	0	0	------	0	------
Little Rock	2	1	0	0	------	1	0	0	------	0	------
Louisiana:											
New Orleans	5	8	1	0	0	15	2	3	3	4	144
Shreveport	1	2	1	0	0	2	0	0	0	0	17

City reports for week ended January 1, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—contd.											
Oklahoma:											
Oklahoma City	2	8	1	0	0	2	0	0	0	1	23
Texas:											
Dallas	3	15	0	1	0	3	0	0	0	0	[illegible]1
Galveston	0	3	0	0	0	3	0	0	0	0	25
Houston	2	0	1	4	0	6	0	1	1	0	71
San Antonio	1	2	0	0	0	7	0	0	0	0	[illegible]9
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	0	4
Great Falls	1	12	1	0	0	1	0	1	0	0	7
Helena	0	0	0	1	0	0	0	1	0	0	7
Missoula	1	9	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	2	6	0	0	0	0	0	0	0	0	3
Colorado:											
Denver	10	70	3	0	0	5	0	0	0	3	87
Pueblo	3	1	0	0	0	2	0	1	0	0	15
New Mexico:											
Albuquerque	0	3	0	0	0	10	0	0	0	0	19
Arizona:											
Phoenix	1	0	0	0	0	8	0	0	0	0	26
Utah:											
Salt Lake City	3	0	2	0	0	1	0	0	1	0	37
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	8	6	3	0			1	1		3	
Spokane	5	21	4	1			0	0		2	
Tacoma	3	3	1	6	0	0	0	1	0	3	25
Oregon:											
Portland	7	12	7	3	0	4	0	0	1	0	83
California:											
Los Angeles	19	48	3	1	0	24	2	4	0	10	327
Sacramento	2	2	1	0	0	2	0	0	0	0	28
San Francisco	11	14	1	0	0	15	1	0	0	7	180

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Vermont:									
Burlington	0	1	0	0	0	0	0	0	0
Massachusetts:									
Boston	1	1	0	0	0	0	0	1	0
Springfield	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	4	6	4	3	0	0	1	0	0
Rochester	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	0	0	0	0	0	0	0	0
Pittsburgh	0	0	0	1	0	0	0	0	0

City reports for week ended January 1, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	0	0	0	1	0
Cleveland	0	0	0	2	0	0	0	0	0
Columbus	1	0	0	1	0	0	0	0	0
Illinois:									
Chicago	4	2	0	0	0	0	1	0	0
Michigan:									
Detroit	1	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	4	3	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	1	2	0	0	0	0	0
Virginia:									
Norfolk	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	0	0	0	1	1
South Carolina:									
Charleston	0	0	0	0	0	0	0	1	0
Georgia:									
Atlanta [1]	0	0	0	0	0	1	0	0	0
Savannah	0	0	1	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	1	0	0	0	0	0	0
Tennessee:									
Memphis	0	0	0	1	0	1	0	0	0
Alabama:									
Birmingham	1	1	1	1	0	0	0	0	0
Mobile	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	0	0
Texas:									
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Missoula	1	1	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles	0	1	0	0	0	0	0	0	0

[1] Typhus fever: 2 cases at Atlanta, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 1, 1927, compared with those for a like period ended January 2, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 95 cities reporting deaths had more than 29,200,000 estimated population in 1925 and more than 29,730,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 28, 1926, to January 1, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
101 cities	165	224	159	[2] 201	[3] 158	189	122	[4] 166	132	[5] 173
New England	120	173	103	163	132	161	89	161	141	[6] 169
Middle Atlantic	137	176	138	160	147	167	108	139	126	171
East North Central	164	267	158	223	154	216	150	[7] 185	132	[8] 194
West North Central	272	209	239	193	178	129	184	113	160	[9] 167
South Atlantic	207	242	192	239	192	218	94	[10] 213	129	175
East South Central	116	301	121	[2] 275	89	145	71	[11] 208	110	187
West South Central	264	318	176	267	[3] 241	258	128	[12] 217	150	224
Mountain	231	228	160	246	176	164	166	137	111	137
Pacific	122	270	191	240	177	253	88	226	127	156

MEASLES CASE RATES

	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
101 cities	342	175	427	[2] 199	[3] 515	190	416	[4] 208	613	[5] 224
New England	1,526	102	1,953	165	2,082	229	1,579	168	2,406	[6] 199
Middle Atlantic	338	37	451	23	518	24	382	22	558	22
East North Central	243	145	293	218	479	242	537	[7] 243	753	[8] 261
West North Central	18	113	25	129	35	109	70	77	61	[9] 60
South Atlantic	516	49	539	54	570	90	240	[10] 57	470	180
East South Central	37	26	21	[2] 83	79	21	116	[11] 48	105	78
West South Central	4	142	4	146	[3] 9	82	9	[12] 7	0	13
Mountain	9	2,840	37	3,214	28	2,349	28	2,777	83	3,541
Pacific	55	704	52	617	77	607	36	884	47	701

SCARLET FEVER CASE RATES

	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
101 cities	211	242	223	[2] 238	[3] 232	279	203	[4] 256	225	[5] 267
New England	216	326	187	340	192	388	240	248	304	[6] 368
Middle Atlantic	166	156	172	177	189	214	146	212	168	234
East North Central	261	239	288	236	286	242	234	[7] 252	249	[8] 243
West North Central	405	435	476	431	454	413	438	371	509	[9] 387
South Atlantic	119	182	152	175	154	201	157	[10] 153	140	240
East South Central	163	244	110	[2] 149	116	249	168	[11] 296	100	176
West South Central	106	211	141	142	[3] 88	237	97	[12] 171	119	151
Mountain	240	929	157	801	277	1,111	213	974	250	802
Pacific	215	267	185	232	243	386	182	305	210	253

SMALLPOX CASE RATES

	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
101 cities	13	14	21	[2] 11	[3] 20	16	18	[4] 15	24	[5] 12
New England	0	0	0	0	0	0	0	0	0	[6] 0
Middle Atlantic	0	1	0	1	1	1	0	0	1	1
East North Central	13	21	33	7	26	11	25	[7] 16	23	[8] 8
West North Central	18	48	18	38	37	46	20	28	18	[9] 19
South Atlantic	4	19	8	19	12	26	10	[10] 31	25	41
East South Central	11	0	5	[2] 22	11	78	0	[11] 56	74	47
West South Central	13	9	9	9	[3] 23	43	9	[12] 39	22	22
Mountain	0	18	102	18	37	0	9	18	37	9
Pacific	105	35	124	43	113	40	130	43	152	22

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1925, and 1926, respectively.
[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Terre Haute, Ind., Superior, Wis., Lynchburg, Va., Norfolk, Va., Greenville, S. C., Louisville, Ky., and New Orleans, La., not included.
[5] Hartford, Conn., Superior, Wis., and Topeka, Kans., not included.
[6] Hartford, Conn., not included.
[7] Terre Haute, Ind., and Superior, Wis., not included.
[8] Superior, Wis., not included.
[9] Topeka, Kans., not included.
[10] Lynchburg, Va., Norfolk, Va., and Greenville, S. C., not included.
[11] Louisville, Ky., not included.
[12] New Orleans, La., not included.

Summary of weekly reports from cities, November 28, 1926, to January 1, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
101 cities	19	10	20	[2] 13	[3] 16	12	9	[4] 10	10	[5] 12
New England	22	7	22	2	10	31	10	40	7	[6] 26
Middle Atlantic	26	9	25	18	17	8	11	5	7	7
East North Central	8	6	12	3	13	5	7	[7] 4	6	[8] 5
West North Central	10	10	12	4	14	10	4	10	6	[9] 4
South Atlantic	19	17	23	24	17	19	12	[10] 16	12	34
East South Central	53	42	26	[2] 44	26	21	5	[11] 24	32	21
West South Central	40	9	31	13	[3] 28	22	9	[12] 7	48	17
Mountain	0	9	18	9	9	9	18	0	9	27
Pacific	14	16	14	16	17	24	8	22	8	16

INFLUENZA DEATH RATES

	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
95 cities	11	14	13	[2] 17	[3] 14	14	12	[4] 15	15	[5] 17
New England	10	7	10	9	14	7	12	7	12	[6] 13
Middle Atlantic	10	13	12	12	8	13	9	14	10	21
East North Central	6	9	11	14	17	12	8	[7] 10	8	[8] 15
West North Central	6	4	6	15	4	15	6	11	15	[9] 6
South Atlantic	17	21	8	34	10	26	17	[10] 33	19	17
East South Central	42	42	47	[2] 44	33	5	32	[11] 56	32	26
West South Central	39	43	44	43	[3] 36	43	48	[12] 30	44	14
Mountain	18	46	18	36	0	9	28	27	28	46
Pacific	4	11	4	11	18	7	15	4	40	0

PNEUMONIA DEATH RATES

	Dec. 5, 1925	Dec. 4, 1926	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927
95 cities	144	122	130	[2] 129	[3] 149	138	136	[4] 139	186	[5] 164
New England	180	118	132	135	158	149	165	151	213	[6] 176
Middle Atlantic	161	150	132	139	148	147	145	166	188	179
East North Central	142	87	116	103	132	119	101	[7] 110	145	[8] 134
West North Central	54	74	84	118	133	120	99	91	127	[9] 117
South Atlantic	159	105	173	154	200	126	205	[10] 147	267	186
East South Central	131	135	184	[2] 171	215	130	142	[11] 104	263	192
West South Central	155	161	208	151	[3] 184	184	174	[12] 145	276	151
Mountain	157	209	176	109	120	273	203	164	268	200
Pacific	98	153	76	114	98	124	87	149	138	190

[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Terre Haute, Ind., Superior, Wis., Lynchburg, Va., Norfolk, Va., Greenville, S. C., Louisville, Ky., and New Orleans, La., not included.
[5] Hartford, Conn., Superior, Wis., and Topeka, Kans., not included.
[6] Hartford, Conn., not included.
[7] Terre Haute, Ind., and Superior, Wis., not included.
[8] Superior, Wis., not included.
[9] Topeka, Kans., not included.
[10] Lynchburg, Va., Norfolk, Va., and Greenville, S. C., not included.
[11] Louisville, Ky., not included.
[12] New Orleans, La., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total	101	95	29,900,058	30,427,598	29,221,531	29,733,613
New England	12	12	2,176,124	2,206,124	2,176,121	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	12	10	2,550,024	2,589,131	2,431,253	2,468,448
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,695
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended December 18, 1926.—The following report for the week ended December 18, 1926, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Arabia: Aden	0	0	0	0	1	0
British India:						
Bombay	....	0	....	0	6	4
Madras	....	0	....	0	9	1
Calcutta	....	0	....	51	97	62
Rangoon	....	0	....	1	0	0
Negapatam	....	0	....	9	0	1
Ceylon: Colombo	1	1	0	0	0	0
Straits Settlements:						
Singapore	0	0	5	2	2	1
Dutch East Indies:						
Cheribon	0	0	0	0	0	0
Surabaya	1	1	0	0	0	0
Macassar	0	0	0	0	0	0
Siam: Bangkok	0	0	1	0	3	1
French Indo-China:						
Turane	0	0	8	6	0	0
Haiphong	0	0	....	66	0	0
China: Shanghai	0	0	0	0	1	0
Mauritius: Port Louis	8	7	0	0	0	0
Reunion: St. Denis	1	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire.
British India.—Karachi, Chittagong, Cochin, Vizagapatam, Tuticorin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang.
Dutch East Indies.—Samarang, Batavia, Sabang, Banjermasin, Palembang, Belawan-Deli, Padang, Tarakan, Balikpapan, Samarinda, Pontianak.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy.
Hongkong.
Macao.
Formosa.—Keelung.
Japan.—Yokohama, Osaka, Nagasaki, Niigata, Tsuruga, Hakodate, Shimonoseki, Moji, Kobe.
Korea.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.
Kwantung—Port Arthur, Dairen.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Britain, Mandated Territory—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Madagascar.—Majunga, Tamatave.
Portuguese East Africa.—Mozambique, Beira Lourenço-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Dutch East Indies.—Menado.
U. S. S. R.—Vladivostok.

ALGERIA

Plague—Oran—November 21–30, 1926.—During the 10 days ended November 30, 1926, 25 cases of plague with 22 deaths were reported at Oran, Algeria.

Plague—Oran and vicinity.—Plague has been reported in Algeria as follows: December 2, 1926, at Oran, 2 cases, 1 death; previously reported as suspect; on the same date, at Tarafaraoui, vicinity of Oran, 3 fatal cases. December 3, at Oran, 3 new cases; at Tarafaraoui, cases, 3, deaths, 1. On December 9, 1926, the occurrence of 4 new cases with 1 death and fatal termination in 2 cases previously reported as suspect.

BRAZIL

Mortality—Plague—Plague-infected rats found in interior—Rat proofing—State of Rio Grande do Sul—1925.—During the year 1925, 26,805 deaths were reported in the State of Rio Grande do Sul, of which 1,400 were stillbirths, giving a death rate of 11.40 per 1,000 for the year, as compared with 11.41 for the year 1924.

Plague.—Three fatal cases of plague were reported, occurring in the port of Rio Grande. Plague-infected rats were reported found in the interior of the State, in 2 towns. It was stated that all new buildings under construction were required to be made ratproof.

Other communicable diseases.—Cerebrospinal meningitis, 3 deaths, as compared with 7 deaths in the previous year and 17 deaths in the year 1923. Tuberculosis, 2,243 deaths, as compared with 2,438 in 1924. Typhoid fever and paratyphoid, deaths, 680, of which 102 occurred in the capital city, Porto Alegre (population, 52,421).

BRITISH SOUTH AFRICA

Smallpox—Northern Rhodesia—November 27–December 3, 1926.—During the week ended December 3, 1926, 200 cases of smallpox in natives were reported in Northern Rhodesia. Population—European 4,424; native, 1,106,534.

CANADA

Communicable diseases—Week ended December 25, 1926.—The Canadian Ministry of Health reports cases of certain communicable diseases for the week ended December 25, 1926, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario [1]	Manitoba	Saskatchewan	Alberta	Total
Influenza	26							26
Smallpox					2	6	12	20
Typhoid fever		1	75			1	1	78

[1] No report received.

Communicable diseases—Province of Ontario—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	December, 1926		December, 1925	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis		3	2	
Chancroid	1			
Chicken pox	1,247		597	
Diphtheria	317	23	266	25
German measles	19		19	
Gonorrhea	117		148	
Influenza		17		31
Lethargic encephalitis	1	1	5	2
Measles	1,095	1	489	
Mumps	147		295	
Pneumonia		165		197
Poliomyelitis	2			
Scarlet fever	534	5	558	13
Septic sore throat	3	1	10	
Smallpox	106		32	
Syphilis	86		74	
Tuberculosis	113	50	166	62
Typhoid fever	42	6	53	5
Whooping cough	410	4	113	7

Smallpox.—During the month of December, 1926, 106 cases of smallpox were reported in the Province of Ontario, Canada, the greatest number of cases according to locality being as follows: Toronto, 30; Peterboro, 18; Belleville, 12.

CUBA

Communicable diseases—Habana—December, 1926.—During the month of December, 1926, communicable diseases were reported at Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment, Dec. 31, 1926
Beriberi	2		2
Chicken pox	6		3
Diphtheria	13	1	7
Leprosy	1	1	11
Malaria [1]	105		43
Measles	9	1	5
Paratyphoid fever	2	1	
Scarlet fever	6		4
Typhoid fever [1]	51	11	75

[1] Many of these cases from the interior.

EGYPT

Plague—December 3–16, 1926.—Plague has been reported in Egypt as follows: December 3 to 9, 1926—two cases occuring at two localities in the district of Kafr el Sheikh; December 10 to 16, 1926—one case, occurring in the district of Tanta.

Summary—January 1–December 16, 1926.—From January 1 to December 16, 1926, 150 cases of plague were reported in Egypt; corresponding period, 1925—138 cases.

GREAT BRITAIN

Health week—Hull, England.—Information has been received under date of October 28, 1926, in regard to the health week held at Hull, England, during the week ended October 23, 1926, and which was visited by approximately 45,000 persons. The exhibits presented were entirely educational in character and were intended to demonstrate the value of sanitary science against disease and insanitary conditions. The principal exhibits were on the subjects of cancer, tuberculosis, and child welfare. The exhibit of the Central Council for Infant and Child Welfare consisted of about 2,000 objects, including posters, specimens of children's clothing, etc. This exhibit, with the sunlight clinic, showing the effect of ultra-violet rays, used primarily for children affected with rickets, and the exhibits in regard to food adulterants, atmospheric pollution, and cancer, were of major interest. Films were extensively used for demonstration of the rat menace, the winter harborage of flies, influenza, physical education, central heating, and the preparation of dried milk. Scarlet fever and typhoid fever prevalence in Hull for the period 1885–1925 is shown as follows:

	Scarlet fever		Typhoid fever	
	Cases	Deaths	Cases	Deaths
1885	(1)	38	(1)	33
1895	1,062	38	281	49
1905	675	26	128	22
1915	598	5	94	14
1925	419	4	26	3

[1] Figures not available.

General death rates per 1,000 for Hull, 1871 to 1925

Year	Death rate	Year	Death rate
1871–1880	23.7	1921	13.0
1881–1890	19.6	1922	14.4
1891–1900	19.1	1923	11.4
1901–1910	16.5	1924	13.5
1911–1920	15.9	1925	13.2

GREECE

Plague—Pravi—November 27, 1926.—The occurrence of a fatal case of plague was reported November 27, 1926, at Pravi, Province of Drama-Kavala, Greece.

JAMAICA

Smallpox (alastrim)—November 28–December 25, 1926.—During the four weeks ended December 25, 1926, 34 cases of smallpox, reported as alastrim, were notified in the island of Jamaica, exclusive of the parish and city of Kingston.

Other communicable diseases.—During the period under report other communicable diseases were reported in the island of Jamaica as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Chicken pox	1	5	Puerperal fever		2
Dysentery		67	Tuberculosis	7	35
Erysipelas		1	Typhoid fever	19	89
Lethargic encephalitis		1			

Population, island, 916,620; Kingston, census of 1921, 62,707.

MADAGASCAR

Plague—October 16–31, 1926.—During the period October 16 to 31, 1926, 135 cases of plague with 121 deaths were reported in the island of Madagascar. The distribution according to type of disease was as follows: Cases—Bubonic, 37; pneumonic, 48; septicemic, 50.

PORTUGAL

Plague—Lisbon—November, 1926.—Under date of December 16, 1926, the occurrence of three cases of plague was reported at Lisbon, Portugal, during the period November 23 to 26, 1926.

Cases and dates of onset.—Cases and dates of onset of the disease were reported as follows: (1) Employee in a coal dealer's shop, at Belem, a suburb of Lisbon, with date of onset November 18 and fatal termination November 24, 1926. (2) Case reported November 26, with onset November 9. The patient was a grocer and was believed to have gone on board a lighter from the steamship *Leander* from Antwerp, to purchase potatoes, which he stored in a basement of the house in which the first case occurred. (3) Case with fatal termination in a contact with the first case. The first and second cases lodged in the basement in which the potatoes imported on the *Leander* were stored.

UNION OF SOUTH AFRICA

Plague—Cape Province—November 21–27, 1926.—During the week ended November 27, 1926, a case of plague was reported in De Aar District, Cape Province, occurring in a native, a contact with the case reported during the previous week on Farm Blauwboschkuilen, Hanover District, Cape Province.

Smallpox—Natal.—During the same period a case of smallpox was reported in the Durban vicinity, State of Natal, making a total from October 14, the beginning of the outbreak, of 62 cases with 16 deaths.

YUGOSLAVIA

Communicable diseases—November, 1926.—During the month of November, 1926, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	38	6	Rabies	4	1
Cerebrospinal meningitis	6	4	Scarlet fever	686	99
Diphtheria	218	34	Smallpox	1	1
Dysentery	169	24	Tetanus	17	10
Glanders	1		Typhoid fever	644	74
Lethargic encephalitis	3	1	Typhus fever	9	
Measles	772	3	Whooping cough	345	12

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended January 21, 1927[1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Tsingtao	Nov. 28-Dec. 11			Present.
India				Oct. 24-30, 1926: Cases, 1,488; deaths, 904.
Rangoon	Nov. 21-27	1	1	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Oran	Nov. 21-30	25	22	
Do	Dec. 1-10	7		
Tarafaraoui	Dec. 2-9	10	7	Vicinity of Oran.
Ceylon:				
Colombo	Nov. 28-Dec. 4	1		
Egypt				Dec. 3-9, 1926: Cases, 2. Jan. 1-Dec. 9, 1926: Cases, 149; corresponding period, 1925; cases, 138.
Kafr el Sheikh	Dec. 3-9	2		
Tanta	Dec. 16-20	1		
Greece:				
Pravi	Nov. 27	1	1	Province of Drama-Kavala.
India				Oct. 24-30, 1920: Cases, 1,437; deaths, 857.
Bombay	Nov. 21-27	1	1	
Madras Presidency	Nov. 7-13	75	32	
Rangoon	Nov. 21-27	3	3	
Java:				
Batavia	do	8	8	Province.
Madagascar				Oct. 16-31, 1926: Cases, 135; deaths, 121.
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	do	2	2	Bubonic, 1; pneumonic, 1.
Maevatanana	do	10	10	Bubonic, 5; pneumonic, 5.
Moramanga	do	21	15	Bubonic, cases, 10; deaths, 4; pneumonic, cases, 7; deaths, 7; septicemic, cases, 4; deaths, 4.
Tamatave	do	3	1	Bubonic.
Tananarive—				
Tananarive Town	do	13	13	Buboni, 4; pneumonic, 4; septicemic, 5.
Other localities	do	85	79	Bubonic, cases, 13; deaths, 9; pneumonic, cases, 36 deaths, 34 septicemic, cases 36 deaths, 36
Portugal:				
Lisbon	Nov 23-26	3	2	In suburb of Belem
Union of South Africa				
Cape Province—				
De Aar District	Nov. 21-27	1		Native Occurring on farm and in contact with previous case on Farm Blauwboschkuilen.

[1] From medical officers of the Public Health Service, American consuls and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 21, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Arabia:				
Aden	Dec. 12-18	1		Imported.
British South Africa:				
Northern Rhodesia				Nov. 27-Dec. 3, 1926: Cases, 200. In natives.
Canada				Dec. 19-25, 1926: Cases, 20.
Alberta	Dec. 19-25	12		
Manitoba	do	2		
Ontario—				
Kingston	Jan. 1-7	1		
Ottawa	Dec. 26-31	1		
Toronto	Dec. 19-25	3		
Do	Jan. 1-7	5		
Saskatchewan	do	6		
China:				
Chungking	Nov. 21-27			Present.
Chosen:				
Seoul	Nov. 1-30	2		
Great Britain:				
England and Wales—				
Sheffield	Nov. 28-Dec. 18	22		
India				Oct. 24-30, 1926: Cases, 530; deaths, 152.
Bombay	Nov. 21-Dec. 4	7	6	
Madrus	Dec. 5-11	3		
Jamaica				Nov. 26-Dec. 25, 1926: Cases, 34. Reported as alastrim.
Java:				
Surabaya	Nov. 7-13	2	1	
Mexico.				
Ciudad Juarez	Dec. 21-27		1	
Mexico City	Dec. 16-22	1		Including municipalities in Federal District.
Siam				Nov. 21-27, 1926: Cases, 37; deaths, 2. Apr. 1-Nov. 27, 1926: Cases, 691; deaths, 258.
Bangkok	Nov. 21-27	1		
Union of South Africa:				
Cape Province—				
Stutterheim district	Nov. 21-27			Outbreaks.
Natal—				
Durban municipality	do	1		Oct. 14, 1926, to date: Cases, 62; deaths, 16. Durban and vicinity. Hindus and natives.
Orange Free State—				
Bothaville district	do			Outbreaks.
Yugoslavia				November, 1926: 1 case, 1 death.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
China:				
Antung	Nov. 22-Dec. 5	4		
Chosen:				
Seoul	Nov. 1-30	1		
Greece:				
Athens	do	4		
Yugoslavia				November, 1926: Cases, 9.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 14, 1927[1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov 14-20			Present.
Tsingtao	Nov. 14-27			Do.
French Settlements in India	Aug. 29-Oct. 2	93	64	
India	Oct. 10-23			Cases, 2,658; deaths, 1,508.
Calcutta	Oct. 31-Nov. 20	84	69	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22, deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925; Cases, 3; deaths, 1.
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Siam	do			Case, 1.
Do	Apr. 1-Nov. 20			Cases, 7,714; deaths, 5,080.
Bangkok	Oct. 31-Nov. 20	6	1	
Straits Settlements	July 25-Aug. 21		11	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-28	21	18	
Tarafaraoui	do		2	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Ceylon:				
Colombo	Nov. 14-27	1	1	Two plague rodents.
China:				
Nanking	Oct. 31-Nov. 20			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-30	12	3	Rats taken, 24,887; found infected, 77.
Egypt	Jan. 1-Dec. 2			Cases, 147.
Alexandria	Nov. 19-Dec. 2	2		
Tanta District	Nov. 19-25	2		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	do		3	
Patras	Nov. 28-Dec. 4		1	
India	Oct. 10-23			Cases, 3,552; deaths, 2,003.
Madras	Oct. 17-23	83	45	
Rangoon	Nov. 14-20	3	2	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-20	9	9	Province.
Surabaya	Oct. 24-Nov. 6	8	8	
Nigeria	Aug. 1-31	187	164	
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	11	
Syria:				
Beirut	Nov. 11-20	1		
Union of South Africa:				
Cape Province—				
Hanover District	Nov. 14-20	1		Native. On farm.
Orange Free State—				
Hoopstad District	Nov. 7-13	1	1	Do.

[1] From medical officers of the Public Health Service, American consuls, and other sources. For reports received from June 26 to Dec. 31, 1926, see Public Health Reports for Dec. 31, 1926. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 14, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21–Oct. 20	160		
Belgium	Oct. 1–10	1		
Brazil:				
Bahia	Oct. 30–Nov. 20	3	3	
Para	Oct. 31–Nov. 6		1	
Pernambuco	Oct. 17–Dec. 4	56	2	
Rio de Janeiro	Nov. 14–27	80	41	
Sao Paulo	Aug. 23–Oct. 3	10	8	
Canada	Dec. 5–18			Cases, 97.
Alberta	do	14		
Calgary	Nov. 28–Dec. 25	12		
Manitoba	Dec. 5–18	4		
Winnipeg	Dec. 19–25	1		
Ontario	Dec. 5–18	68		
Ottawa	Dec. 12–18	4		
Toronto	Dec. 14–20	11		
Saskatchewan	Dec. 5–18	11		
China:				
Chungking	Nov. 7–20			Present.
Foochow	Nov. 7–13			Do.
Hankow	Nov. 6–30			Do.
Swatow	Nov. 21–27			Do.
Chosen	Aug. 1–31	33	10	
Egypt:				
Cairo	June 11–Aug. 26	27	4	
Estonia	Oct. 1–30	2		
France	Sept. 1–30	66		
French Settlements in India	Aug. 29–Sept. 25	40	40	
Gold Coast	Aug. 1–31	41	5	
Great Britain:				
England and Wales	Nov. 14–Dec. 11			Cases, 1,300.
Newcastle-on-Tyne	Dec. 5–11	2		
Greece	Nov. 1–30	20		
India	Oct. 10–23			Cases, 1,335; deaths, 384.
Bombay	Nov. 7–13	4	2	
Calcutta	Oct. 31–Nov. 20	16	14	
Madras	Nov. 21–Dec. 4	4	1	
Indo-China	July 1–31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31–Nov. 6	1	1	
Basra	Nov. 7–13	1	1	
Italy	Aug. 29–Sept. 11	4		
Jamaica	Dec. 5–11	20		Reported as alastrim.
Japan:				
Kobe	Nov. 14–20	1		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24–Nov. 6	6		
Mexico:				
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14–20		1	
Mexico City	Nov. 21–Dec. 11	4		Including municipalities in Federal District.
San Luis Potosi	Nov. 12–Dec. 18		3	
Torreon	Nov. 28–Dec. 25		7	
Poland	Oct. 11–30			Cases, 30.
Portugal:				
Lisbon	Nov. 22–Dec. 18	37	3	
Rumania	Jan. 1–Sept. 30	7	1	
Siam	Apr. 1–Nov. 20			Cases, 1,301; deaths, 511.
Bangkok	Oct. 31–Nov. 20	12	3	
Tunisia	Oct. 1–20	1		
Union of South Africa:				
Natal—				
Durban District	Nov. 7–20	8		Including Durban Municipality. Total from date of outbreak; cases, 56; deaths, 11
Orange Free State	Nov. 14–27			Outbreaks.
Transvaal	Nov. 7–20	2		Europeans.
Johannesburg	Nov. 14–20	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 14, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	12		
Bulgaria	July 1-Sept. 30	221	24	
Chile:				
Valparaiso	Nov. 21-Dec. 4	2		
China:				
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-31	5		
Greece	Nov. 1-30	12	1	
Italy	Aug. 29-Sept. 11	1		
Lithuania	Sept. 1-30	12	2	
Mexico:				
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Palestine:				
Haifa	Nov. 23-29	2		
Jaffa	do	2		
Nazareth	Nov. 16-29	2		
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
Rumania	Aug. 1-Sept. 30	72	3	
Russia	Aug. 1-31	1,156		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-20			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Aug. 1-31	7	2	
Senegal:				
Diourbel	Dec. 6	1	1	
Rufisque	Nov. 27	1	1	In European.
Upper Volta:				
Gaoua district	Oct. 25	2		

TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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QUESTIONS AND ANSWERS ON SMALLPOX AND VACCINATION

By J. P. LEAKE, Surgeon, United States Public Health Service

The following questions are not infrequently asked by physicians in regard to variola and its prevention. Part of the answers given are supported by good evidence, part by conclusive evidence, but much, unfortunately, is only opinion, a personal weighing of such evidence as is at hand; yet each of the questions should have a tentative answer, according to the best light available. Further information may change the answers given here. Though for nearly every statement that can be made concerning smallpox some support can be found in the literature, a few of the observations here recorded are original. It is hoped that many of the gaps in our knowledge of smallpox and vaccination may soon be filled. Of all infectious diseases prevalent in the United States this disease is the most completely preventable by public health measures.

1. *What is the best method of vaccination?*

Probably the "multiple pressure or prick" method.[1] This consists of a shallow, tangential pricking of the cleansed, but not irritated, skin with a needle, through a drop of smallpox vaccine, covering an area not greater than one-eighth of an inch (3 millimeters) in diameter. This gives little chance of accidental infection and the eruption is typical. Acetone has been found satisfactory for cleansing the skin. It is somewhat more efficacious and rapidly drying than alcohol. The needle, which should be new, sharp, and sterile, is not

[1] Various names have been applied to different forms of this method, including "acupuncture," "multiple puncture," and the names of different individuals who have made slight modifications and have been responsible for its use. Perhaps the Suttons, of London, in the prevaccinal inoculation days (1763) were the first to attempt to deposit virus between the skin layers, and Jenner himself used a form of this method in some of his early vaccinations. Doctor Kinyoun, formerly of the United States Public Health Service, was chiefly responsible for the introduction of the method in a modern form, making oblique punctures with a needle instead of a lancet, and Dr. H. W. Hill, then of London, Ontario, described and popularized it by publication. As modified by myself and described above, this method differs in only two or three details from the method used by Kinyoun and Hill, principally in that the needle is held entirely parallel or tangential to the skin, and is pressed sidewise. A description was sent to Dr. Benjamin White, who published it in the Boston Medical and Surgical Journal of July 30, 1925. The second printed description of this method was that courteously distributed to physicians of Providence, R. I., later in 1925 by the dean of American health officers, Dr. Charles V. Chapin. The first accompanying illustration is by Doctor White.

None of the names suggested is sufficiently descriptive; "acupuncture" and "multiple puncture" both imply a driving motion of the needle through the skin layers instead of the simple pressure of the side of the point; even "prick" and "tattoo" are suggestive of a more direct puncture. "Multiple pressure" may best convey the idea.

thrust into the skin, but is held quite parallel or tangential to it, with the forefinger and middle finger of the right hand above the needle and the thumb below, the needle pointing to the operator's left. The needle should be crosswise of the arm so that the thumb of the operator is not impeded by hitting the skin. The side of the needle point is then pressed firmly and rapidly into the drop about 30 times within five seconds, the needle being lifted clear of the skin each time. This rapid to and fro motion of lifting the needle and pressing it against the skin should be quite perpendicular to the skin and needle, and not in the direction of the needle. In this way the elasticity of the skin will pull a fraction of an

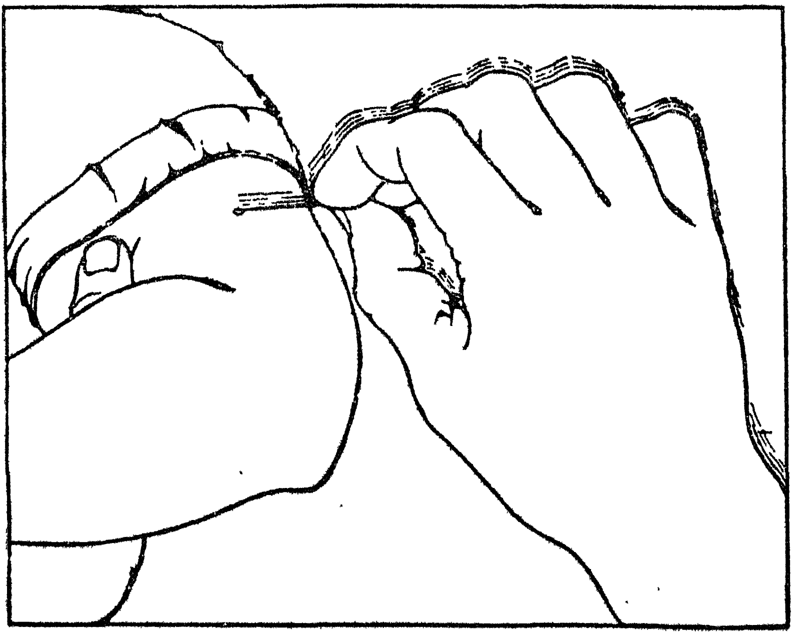

Fig. 1 - The "multiple pressure" method

inch of the epidermis over the point of the needle at each pressure so that the vaccine is carried into the deeper epithelium (cuboidal prickle-cell layer), where multiplication takes place most easily. If the skin has not been unduly rubbed in cleansing, and if the motion is entirely perpendicular to the needle, no signs of bleeding will occur and all evidence of the punctures will fade out in less than 6 hours. Immediately after the punctures have been made the remaining vaccine is wiped off the skin with sterile gauze and the sleeve pulled down, the whole operation of puncturing and wiping taking less than 10 seconds. With strong vaccine a single pressure not infrequently gives a "take." Only 6 pricks or

punctures were formerly advocated; comparative tests showed this to be inferior to the scratch method in percentage of "takes." By the use of 30 pricks this difficulty has been

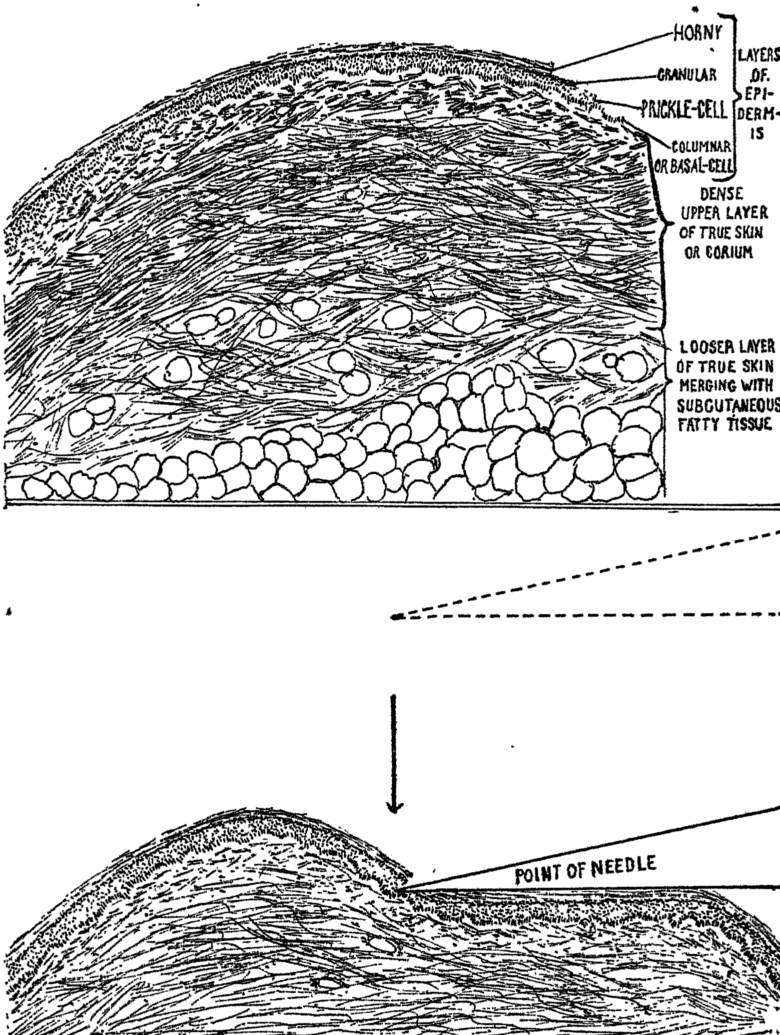

FIG. 2.—Diagrammatic sketch of pressure-prick method of vaccination. The upper illustration shows the ralation of the skin layers before the pressure of the needle has been applied. The lower shows the motion of the needle from its first position above and parallel to the skin, as indicated by the dotted outline, to its final position pressing against the surface of the skin and entering it slightly. (Magnification, 25 diameters. To save space, the curvature of the surface of the arm is much exaggerated and the perpendicular distance which the needle moves is diminished in proportion to this magnification.)

overcome, and the percentage of "takes" is as high as with any other safe method. For primary vaccinations, where the mildest possible "take" is desired, and where other attempts

with highly potent vaccine will be made promptly if the first is unsuccessful, the number of "pricks" may be reduced to 10, or even to a single prick.

The disadvantages of this method, which it shares with some other methods, are, first, that without demonstration and practice the technique of applying the proper pressure may not easily be acquired, and second, that without due care an area larger than one-eighth of an inch (3 millimeters) in diameter may be covered by the insertion. In regard to the first point, the difficulty is usually that the needle is not pressed in the right direction or that the pressure is not firm enough. Provided the needle is held quite tangential to the curve of the arm, and the direction of motion is quite perpendicular to the needle, it is difficult to make the rapid pressures too firmly. In regard to the second point, motion from the wrist with the arm held rigid is usually more accurate than whole-arm motion.

The advantages of this method are its mildness and painlessness, the fact that it is more rapid than any other effectual and safe method, the fact that no control site is necessary, since the evidence of trauma due to the operation has disappeared before the first observation for an early reaction is made, and the fact that the vaccine is wiped off immediately, so that the uselessness of a dressing is obvious to the person vaccinated.

2. *What is the best vaccination dressing?*

None at all. The ideal to be sought is to keep the site cool and dry, so as to promote rapid formation of a firm crust and to avoid maceration and rupture of the vesicle. Heavy or tight clothing, perspiration, and even repeated washing with alcohol interfere with rapid desiccation. If necessary to prevent soiling of the clothing, a fold of sterile gauze may be attached to the garment, not to the skin. Occasionally a severe take may require a few days of antiseptic dressings; primary vaccinations should be inspected about the fourteenth day to insure that desiccation is proceeding properly. There is no objection to a light sterile dressing for the first few days after vaccination, provided the arm is under constant competent surgical attention and maceration is prevented, but such provision is seldom assured.

3. *Are there any objections to vaccination on the leg?*

Yes. Leg vaccinations are exposed to more moisture, and to more contamination from street dust, than vaccinations at the region of the deltoid insertion. On account of blood stasis, primary leg vaccinations in adults are often accom-

panied by a purplish discoloration, and result in a large, slowly healing ulceration; they usually cause temporary disability. Vaccination on the arm when performed by the multiple-pressure method described above causes no disfigurement; the resulting vaccination scar is definite and typically pitted for inspection purposes, but hardly noticeable otherwise except as a "sanitary dimple."

4. *Is early surgical treatment of the vaccination vesicle satisfactory, such as opening and applying antiseptics?*

   Yes; provided constant, competent care is exercised thereafter until healing is complete. However, the maximum immunity is not obtained until the red areola has reached its greatest diameter and begun to fade.

5. *Are any other methods of vaccination and treatment satisfactory?*

   Any method is satisfactory which insures that the vaccine is deposited in the deeper layers of the epidermis with no more injury and over no greater an area than by the pressure method (not longer than one-eighth inch or 3 millimeters in any direction), and which avoids poulticing the developing vaccination. With any scarification method, to secure the maximum number of "takes" possible with the virus used, the vaccine should be rubbed in with the side of the scarifier or with a sterile toothpick for at least 15 seconds. Dr. Chas. Armstrong has rightly suggested that even after open scarification the vaccine be immediately wiped off following this rubbing in, to avoid softening of the skin or subsequent maceration from the glycerin.

6. *Are there any objections to the intracutaneous injection of diluted vaccine virus?*

   Yes. It is likely to be more painful than the method described above, and in many instances, even in good hands, the injection will be subcutaneous rather than intracutaneous; subcutaneous applications of smallpox vaccine give reactions which are different from ordinary vaccinia and are not to be differentiated from reactions following other injections, so that one is never sure of the potency of the vaccine being used.

7. *How may the various reactions following smallpox vaccination be differentiated?*

   By observation 2 days after vaccination and twice later, about 4 and 8 days after vaccination, and by the cooperation of the person vaccinated to observe when the maximum reaction is reached. With a reaction of immunity, which indicates full protection against smallpox, the broadest redness is reached and passed in 8 to 72 hours after vaccination. This redness is accompanied by a slight elevation of the

skin, which can be felt by passing the finger lightly over the vaccinated area. With the accelerated or modified vaccination or vaccinoid, which indicates partial immunity, the broadest redness is reached and passed in 3 to 7 days after vaccination. With a typical primary vaccination, indicating absence of immunity to smallpox prior to this vaccination, the zone of redness, rather narrow from the third to the seventh day, begins a sudden spread about 7 days after vaccination and reaches its broadest diameter in 8 to 14 days after vaccination, rapidly disintegrating and disappearing thereafter. These three types merge into each other, all gradations being found in practice; differentiation into the three types is based on the time of broadest redness. The prompter the

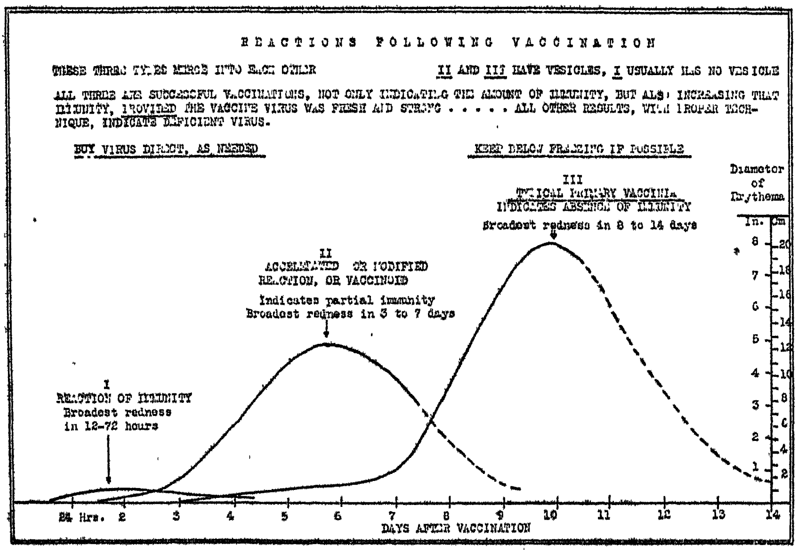

FIG. 3.

maximum the higher is the immunity. Vesicles are formed in vaccinoid and typical vaccinia reactions, but not with the reaction of immunity. The vesicle of a typical vaccinia, and of many vaccinoid reactions, has a turbid, whitish appearance, but if properly cared for does not become a true pustule, and dries up and heals promptly after the height of the reaction is reached. The characteristic pitted scar is red at first and gradually becomes white. Scars of vaccinoids are much less marked, and reactions of immunity usually leave no scar. All three of the types are successful vaccinations provided the smallpox vaccine was fresh and strong. All three not only indicate the grade of the previous immunity, but increase the immunity as well. All other results, where proper technique

was used, indicate deficient vaccine. Every vaccination should give a reaction.

8. *What untoward results from vaccination are to be looked for?*

With aseptic technique and a small insertion site which is kept dry and cool, the great majority of vaccinations go through their typical course and heal promptly if the crust is left undisturbed. The freest possible access of air currents and the natural friction of the clothing seem to promote firmness and rapid crust formation in the superficial skin layer of the vesicle. Particular care that all precautions are taken should be exercised in *primary* vaccinations, as Surg. Chas. Armstrong has pointed out.

Rarely, due possibly to skin bacteria which can not be removed by the preliminary cleansing, the vesicle will become purulent and extend beyond its normal diameter, which is not over three-eighths of an inch (10 millimeters) greater than that of the insertion site, the drying up of the vesicle and the fading of the areola being thereby delayed. Opening of the pustule and the temporary application of some strong antiseptic, such as mercury bichloride solution, should be practiced if this takes place. As soon as a fair-sized areola has formed, the maximum immunity against smallpox has been attained, and the use of an antiseptic will not diminish the vaccinal protection. In general, temporary moist dressings are to be preferred to powders or ointments. Occasionally the vesicle may soften or accidentally rupture, or the crust be knocked off, in which case also temporary dressings may be indicated, but the formation of a firm, unprotected crust should be favored as soon thereafter as possible. For some infants a roomy sleeve fastened to the neck and wrist may be useful to keep out the finger nails.

Accessory vesicles around the vaccination site may in some cases be caused by too vigorous cleansing of the skin prior to vaccination. The virus may also be transferred to scratches or other skin lesions, giving rise to distant vesicles.

True generalized vaccinia practically never occurs. Eruptions at about the time of the maximum reaction or later are not at all infrequent. The earlier eruptions are likely to be morbilliform, some simulating the skin lesions of measles very closely. The later eruptions are more like erythema multiforme. These incidental eruptions are not troublesome after their diagnosis is understood, and they disappear promptly without treatment.

The four most common failures in vaccination, from virus of insufficient potency, are a total lack of any reaction, a

sluggish, imperfect reaction not conforming to any of the three types described in the answer to question 7, an early reaction similar to a reaction of immunity in those who should give a vaccinoid, and the spurious reaction variously known as the keloidal, the mulberry of Scheult, or the paravaccine of Pirquet. This last is a reddish or purplish papule looking somewhat like granulation tissue, rather slow in appearance and often persistent; it gradually disappears without treatment.

To guard against complications use aseptic technique, insertion sites not more than one-eighth of an inch (3 millimeters) in diameter, keep the arm dry and cool, and (in first vaccinations) inspect after 9 to 14 days.

To guard against failures use fresh vaccine that has been kept very cold, and in case of doubt as to potency, vaccinate at more than one site, keeping each site of the minimum size.

9. *How can one tell whether the vaccine used is of full potency?*

A fair test that the vaccine is of full potency is that when properly applied it gives 100 per cent of vaccinias (typical "takes") in every application on at least 100 previously unvaccinated individuals. A more practical test is that it should give more than 50 per cent of vaccinoid reactions in persons who have been vaccinated or have had smallpox over 10 years previously, and immunity reactions or typical vaccinias in the remainder; a much smaller number of individual vaccinations will give a good idea of the potency of a batch of vaccine by this test.

10. *How cold should smallpox vaccine be kept?*

The colder the better; well below freezing if possible. Icebox refrigeration is not cold enough for this purpose. Smallpox vaccine can not be injured by freezing, as can serums and other vaccines. Even a whole day out of cold storage, in addition to the necessary transportation from the manufacturing laboratory, may produce detectable deterioration in potency. Smallpox vaccine which has been out of cold storage so that it gives only about 80 per cent or 90 per cent of successful vaccinations on previously unvaccinated individuals may be satisfactory in ordinary outbreaks of smallpox or in routine vaccinations, but in the presence of severe smallpox or when reactions of immunity are to be observed the vaccine should be obtained direct from the manufacturer and kept below freezing. In an electric refrigerator the smallpox vaccine should be kept in an ice-making compartment. Next best to storage below freezing is placing the vaccine in a metal or glass container which presses against a block of ice. If a vacuum bottle is used for transporting smallpox vaccine the inside of

the bottle should be packed with ice around the vaccine. Fortunately, severe outbreaks of smallpox tend to occur in cool weather, and cause sufficient demand for the vaccine so that it is shipped very directly from the manufacturing laboratories and is used rapidly. In the presence of severe smallpox, when there is uncertainty as to the potency of the vaccine, vaccination should be performed at more than one site, at least an inch apart, preferably with vaccine from different sources. Batches differ in their keeping qualities, but in recent years smallpox vaccine has with uniformity been found to be satisfactory as it leaves the manufacturer.

11. *Does a red, slightly raised area, observed at the site of vaccination 48 hours after vaccination is performed, necessarily indicate that the person vaccinated was immune to smallpox?*

No; there are three other possibilities:

(*a*) The most frequent of these is that the vaccine used had been weakened by time or temperature, so that, while still able to give the reaction described above, it did not go on to the production of a more marked reaction (vaccinoid), as would a vaccine of full strength if used on the same person. Ordinary ice-box refrigeration is not cold enough for the storage of smallpox vaccine which is to be used in testing immunity.

(*b*) Accelerated reactions (vaccinoids) usually give at early inspection (second day) the appearance described above, which is similar to that of a reaction of immunity. Thus, even if an early reaction is observed, subsequent observation, as on the fifth or seventh day, is necessary to determine whether the reaction was that of immunity, with its maximum diameter of redness reached in less than 3 days, or an accelerated reaction (vaccinoid) with later maximum. Even a vaccinoid reaction, however, indicates some immunity. Some true vaccinias may show an early reaction, especially if there have been previous unsuccessful attempts at vaccination. Early reactions are more clearly apparent with the multiple pressure method than with other noninjection methods on account of the absence of injury to the true skin and the consequent absence of an obscuring traumatic reaction. Temperature changes, skin irritation, and other conditions may cause fluctuations in the diameter of the reaction, and there may even be an almost entire subsidence, giving rise to two maxima. In this case the later maximum indicates the true character of the reaction. The only safe rule for determining which of the three types of reaction occurred is repeated observation, as explained in the answer to question 7.

(c) The trauma due to the mere mechanical act of vaccination may cause enough irritation so that the redness persists at the time of the early 48-hour observation, independently of any specific reaction. To obviate falsely reading such redness as a reaction of immunity, it is necessary either to treat another site as a control, with exactly the same degree of trauma but without applying the vaccine, or, preferably, to use a method such as the "multiple pressure," which leaves no traumatic reaction after 6 hours to obscure faint reactions of immunity.

An early reaction can be called a true reaction of immunity only when pure smallpox vaccine has been used and these three other possibilities have been eliminated.

12. *In the reaction of immunity is the grade of immunity indicated by the amount of the reaction?*

No. The *time* after vaccination within which the local area of redness and infiltration of the skin reaches its maximum and begins to subside, and not the amount of this redness and infiltration, is the index of immunity. The quicker the maximum is reached and passed the higher is the degree of immunity indicated. The *amount* of the reaction depends on the skin reactivity of the person vaccinated, and not on the grade of immunity. It is probable that any reaction which is marked within 24 hours will reach its maximum in less than 72 hours, and therefore would constitute an immune reaction, but some of the most highly immune persons give the smallest reactions.

13. *May not the reaction of immunity be an ordinary protein reaction, such as is given, for example, by pollen proteins?*

The protein reactions as shown by the usual skin tests (not subcutaneous) have an altogether different time relation from that of the reaction of immunity to smallpox. The former are rapid, appearing and reaching their maximum within about one-half hour, while the reaction of immunity to smallpox reaches its maximum in not less than 8 hours after vaccination, and usually in more than 24 hours after vaccination. The protein reaction has faded before the reaction of immunity has begun to appear.

14. *How often should one be vaccinated against smallpox?*

Ordinarily once in every 5 to 10 years, so that a maximum protection is maintained without the inconvenience at any time of a reaction more severe than the immunity reaction, except for the original primary vaccinia. Vaccination of infants is attended with less general reaction and fewer complications than vaccination of older children, so that

vaccination is advisable as soon after birth as practicable, preferably before teething. Unless tight underclothing is worn over the arm, winter and spring are more suitable seasons than the warmer parts of the year. Though young babies often require a more potent vaccine than others to insure a successful "take," there are four advantages to be gained by vaccinating a child during infancy rather than waiting until later; first, the "take" is apt to be milder and freer from the dangers of complications, such as tetanus; infantile vaccination usually gives rise to no inconvenience whatever; second, it tends to make the secondary vaccination, required at school age, a much milder affair than if the school vaccination were primary; third, protection against smallpox is gained for the preschool runabout years; fourth, the scar of an infantile vaccination fades more completely than scars of primary vaccinations performed later. Provided the subsequent revaccinations result in vaccinoids or immune reactions, as may be expected, one thereby secures lifelong complete protection against smallpox without any severe reaction at any time and with only an inconspicuous scar.

Immunity afforded by vaccination is lost by different individuals at different rates. The ability to ward off an attack of smallpox may be compared to proficiency in a foreign language. Such proficiency may be first acquired during early life and lost gradually, more rapidly in some individuals than in others. Some individuals need to be vaccinated more often than once in 5 years to maintain full protection and always to secure as the result of such vaccination merely an immunity reaction. Others may be vaccinated less frequently than once in 20 years and still maintain high immunity. It is a good plan to be revaccinated whenever one can be assured of a fully potent virus being used, so that the resulting reaction can be interpreted with certainty as showing a definite grade of immunity. On the basis of such a reaction, with the knowledge of the individual's previous vaccination history, one can often advise as to how frequently in the future that individual should be revaccinated.

The chance of taking the disease varies with the intensity of exposure and with the severity of the strain of smallpox to which one is exposed, as well as with the individual susceptibility. Those health officers who are continually exposed may need more frequent vaccination than the public at large. There is some evidence to show that infants and members of the colored races tend to lose their immunity more rapidly

than others. A primary vaccination with one successful revaccination, or even a single successful vaccination, will as a rule protect throughout life from the milder forms of smallpox, but this is far from being true in the severer outbreaks. Second attacks of smallpox are rare, but do occur. If there is danger of exposure to a severe form of smallpox all persons who have not been vaccinated within one year successfully, that is, with vaccine known to be of full potency, should be vaccinated.

15. *Does the degree or length of immunity following vaccination depend on the size or number of scars?*

To some extent, but not enough to make it worth while to undergo the inconvenience, the retardation of healing, and the risk of infection from a vaccination insertion larger than the smallest one which will insure a successful "take." Immunity depends much more on the recency of vaccination with potent virus than on the size or number of vaccinations at any one time.

16. *What are the contraindications to vaccination?*

In general, skin diseases, particularly eczema, are the only conditions which will justify school attendance and at the same time be contraindications to routine vaccination. This is on account of the danger of diffuse vaccinia from carrying the vaccine into the open lesions of the skin disease, or the danger of contaminating the vaccination site if the skin lesions are purulent. Patients with such diseases as tuberculosis are in no wise harmed by properly performed vaccination. Acute infectious diseases may cause a vaccination "take" to be delayed or atypical, but are not in themselves contraindications in case of possible exposure to smallpox. There is a curious relation in leprosy which tends to cause the lighting up of leprous lesions during the course of the vaccination, but which may promote more rapid healing thereafter. Serious lymphomatous diseases, including lymphatic leukemia, may be made worse by vaccination.

17. *Will a nonimmunized person contract smallpox if exposed to the disease?*

By no means uniformly. Exposure to smallpox, especially to the milder forms, without contracting the disease frequently occurs and is no definite evidence of immunity. The number of cases of smallpox among the unprotected persons in contact with patients suffering from the disease is very much less than 100 per cent.

18. *Does the failure of a vaccination to "take" indicate protection?*

No. Differences in skin receptivity may occur independently of the condition of the individual as regards true immunity. For example, very young infants are not as easily vaccinated as older children, yet they are susceptible to smallpox and when successfully vaccinated give a typical vaccinia. Some individuals may be resistant, in the same way, to a lot of vaccine which gives "takes" generally in other individuals, but are not immune against smallpox when exposed, nor against vaccination when a fully potent lot of vaccine is used.

19. *How long after exposure to smallpox is it worth while to be vaccinated in order to hope that the attack may be warded off?*

In some smallpox hospitals every person is vaccinated on admission, to guard against the danger from exposure in case of error in diagnosis. Successful vaccination performed on the day of exposure will almost always give complete protection against the smallpox attack, and vaccination up to a few days before the onset at least makes the attack milder than it would otherwise have been. Vaccination during the few days before onset will allow the vaccination and smallpox eruption to develop simultaneously without either influencing the other.

The successful development of a vaccination performed after the eruption has appeared is commonly held to be incompatible with the diagnosis of smallpox. Vaccination may, however, rarely appear to be successful if performed as late as the fourth day of the eruption, and it is astonishing how soon after smallpox or vaccination some exceptional individuals lose their immunity to vaccination. Three circumstances may cause confusion in regard to coincident smallpox and vaccinia: A vaccination performed in good time to prevent the smallpox attack may have been done with vaccine somewhat under full potency, and development of the typical vaccinia may be abnormally delayed until stirred up by the oncoming smallpox; or the vaccine may have been entirely impotent and the developing eruption of variola may appear first at the irritated vaccination site, simulating true vaccinia. A late vaccination may in the same way result in a localized variolous patch at the vaccination site, or the late vaccination may give a modified or immune reaction due to the increasing smallpox immunity.

The discussion given above applies to primary vaccination. If the individual has some immunity from a previous vaccination the secondary vaccination may be protective though performed at a somewhat longer period after exposure.

20. *What are the most important points in the diagnosis of smallpox?*

The diagnosis of smallpox may in some cases be difficult for the most experienced, but in order of their importance the most important diagnostic points are the distribution of the eruption, the individual lesions, the course of the disease, and inoculation tests. Of these four points the first two are of especial value because they are immediately available at first inspection of the patient. On account of its contagiousness smallpox should be diagnosed as promptly and as certainly as possible. The characteristics of the distribution are the most uniformly valuable of all the criteria of diagnosis, and are useful at almost any stage and in almost any case. Even in the mildest cases, with only a very few lesions, a count of the number on each part of the skin surface will usually give the clew to the correct diagnosis. It is to be remembered, however, that smallpox is a general disease, and that the eruption is symmetrical and not local.

The usual *distribution* of the smallpox eruption, general and in detail, and the character of the individual *lesion*, are shown by the following table (modified from T. F. Ricketts) of differences between the smallpox eruption and the chicken-pox eruption:

SMALLPOX	CHICKEN POX
(*a*) Favors prominences, extensor surfaces, and surfaces exposed to irritation; tends to avoid protected surfaces, flexures, and depressions.	(*a*) Is distributed indifferently in general, though not infrequently the eruption is especially thick over some particular area of the skin where there has been irritation.
(*b*) The forearms and wrists have a thicker eruption than the upper arms.	(*b*) The proximal part of the limbs have more of the eruption than the distal.
(*c*) Most abundant on face, most scanty on abdomen and chest.	(*c*) The abdomen and chest are covered as thickly as the face, or more thickly.
(*d*) More abundant on the back than on the abdomen.	(*d*) The abdomen has as many lesions as the back.
(*e*) More abundant on the shoulders than across the loins, and on the chest than on the abdomen.	(*e*) The distribution is indifferent as regards these regions.
(*f*) The eruption favors the limbs and generally the arms next to the face.	(*f*) Tends to avoid the limbs.
(*g*) Except when modified naturally or by previous vaccination, the lesions are deep-seated and have an infiltrated base.	(*g*) Unless they have become infected, the solitary lesions on the more protected parts of the body are superficial and the base is not infiltrated, so that the entire lesion tends to collapse on pressure.

(*h*) The solitary lesions on the more protected parts of the body are generally circular in outline.	(*h*) The lesions frequently have an irregular outline; when they lie near a flexure they are apt to be oval or elongated.
(*i*) The lesions tend to be all of the same sort at the same time, or if they are different, the smaller the lesion and the nearer it lies to the face the more advanced in development it should appear to be. In cases of modified smallpox the lesions are likely to vary greatly in size.	(*i*) Lesions at various stages of development may be found simultaneously, irrespective of their location or size.

The above description applies solely to the lesions of the characteristic eruption of smallpox, which go through the stages of papule, vesicle, pustule, crust, and scar, and not to the early rashes, erythematous or purpuric, which are seen rarely during the febrile stage preceding the real smallpox eruption, and which may in the most severe toxic cases constitute the only eruption prior to death.

Any case of purpura or hemorrhage with fever is likely to be smallpox and should be so considered as regards isolation, and immediate vaccination of "contacts," until another diagnosis is clear.

Otherwise presumptive diagnosis, before the characteristic eruption, can be made only in case of an acute febrile onset about 12 days after known or possible exposure to smallpox.

In very severe cases or in debilitation from any other cause the lesions of the true smallpox eruption are often imperfectly filled out.

The *course* of the disease with the gradual but continuous progress of each individual lesion is perhaps the most definite criterion in smallpox diagnosis, but, unfortunately, requires prolonged observation. The incubation period from effective exposure to onset is usually 8 to 18 days, tending to be longer with the milder strains. There are 1 to 5 days of febrile symptoms before the eruption, making the total time from exposure to the beginning of the eruption about 14 days. The eruption is papular for 1 to 4 days, vesicular for 1 to 4 days, pustular for 2 to 6 days, and the crust which forms falls off about 14 days after the first sign of the lesion, leaving a red, finely pitted scar, which very gradually becomes white during the ensuing months or years. Lesions appear first on the more exposed or irritated surfaces, as the forehead, face, and hands, and usually appear last on the lower extremities, perhaps several days later. In general, the more severe the

case the slower the progress of the lesions, while mild cases may go through their course rapidly and leave practically no scars.

The *inoculation* of a rabbit's cornea with the contents of the vesicles or pustules, followed by enucleation of the eyeball 40 to 72 hours after inoculation, fixation in strong sublimate alcohol, and examination for the characteristic whitish papules and the microscopic Guarnieri bodies in the corneal tissue (Paul's test), is the most useful laboratory procedure in the diagnosis of smallpox. This also consumes valuable time, and furthermore has an element of uncertainty on the dangerous side; that is, the atypical cases of smallpox (atypical by reason of the stage at which they are seen, or by reason of their modified character) are likely to give negative Paul reactions, causing a dangerous implication of security.

Though smallpox is unquestionably many times more frequent in the unvaccinated than in those who have had even a single vaccination, it is believed that neither the vaccination history nor the presence of scars should be given diagnostic weight. The unreliability of such a criterion is especially evident in virulent outbreaks of the disease.

21. *What effect does previous vaccination have on smallpox?*

If recent, the vaccination will protect against the disease entirely.

If the protection is not quite complete, on account of the vaccination having been performed too long before, the toxic early stages of the disease are the first to come out from under protection, and the resulting illness may have a fairly severe febrile onset for two or three days, though the following eruption be scanty and the indisposition trivial. The purpuric, uniformly fatal, form of smallpox is the most difficult to prevent by vaccination, and cases of this form, without a true smallpox eruption, may occur in persons with a fairly good vaccination history. The incidence of cases of this form depends on three factors—inherited predisposition, severity of the strain of smallpox, and immune status (remoteness of last vaccination).

If the protection is even less in degree, insufficient to cause much reduction in the number of the smallpox lesions, the individual lesions themselves may still be modified by the vaccination of long before, so that they are smaller or more diverse in size, and more superficial, with a resulting lessened severity.

As a result of all these modifications, in attack, in number of lesions, and in the character of the lesions, vaccination lowers

the death rate from smallpox per 100,000 population even more than it lowers the incidence rate.

22. *Is there another contagious eruptive disease, intermediate between smallpox and chicken pox in severity (variously called alastrim, milk pox, amaas, or varioloid varicella), which might be mistaken for either of these two diseases?*

No. Outbreaks of smallpox occur of all grades of severity, some with a mortality of 70 per cent among those attacked and some with a mortality of 0.01 per cent. Since 1896 a mild form has been increasingly prevalent in the United States and countries in communication with the United States, having a fatality of about 0.1 per cent among the unvaccinated. The strains of the disease present just previously had been much more severe, and from time to time outbreaks are now occurring with a fatality rate of about 30 per cent in the unvaccinated. Each of these strains in general breeds true to its respective type, and mild cases contracted from severe give rise in turn to severe and fatal cases. There is no definite grade of severity or of fatality that we can consider characteristic of smallpox, and it is probable that almost all of the epidemics called "alastrim," etc., have been mild forms of smallpox. All forms of smallpox immunize against each other, and all may be prevented by the same vaccination. Exposure to a severe form is much more likely to give rise to infection than exposure to a mild form, and it takes a higher grade of vaccinal immunity (more recent vaccination) to protect against a severe strain than against a mild strain. In moderately well vaccinated communities, such as Germany, epidemics of mild type are entirely prevented and outbreaks of severe type much diminished. On the other hand, in poorly vaccinated communities, where isolation is nevertheless practiced, such as England and the greater part of the United States, mild strains spread more diffusely than severe because they are not taken so seriously by those attacked nor by the public at large, and because the attack is not severe enough to keep the patient in bed and isolated. The mildness of the form of smallpox commonest at present is one reason for endeavoring to make preventive vaccination as harmless and as mild as possible.

23. *Is vaccination alone a sufficient weapon for fighting smallpox?*

No. Prompt recognition and rigid isolation of the cases, as well as the tracing out of "contacts," should also be carried out to stop the spread unless the outbreak is very mild and in thinly settled regions. Cases, and even fatalities, occur in

every severe epidemic among persons who were vaccinated in good time but with vaccine found, too late, to be of insufficient potency; such cases and fatalities also occur among persons thought to be protected by successful vaccination performed years previously. This presumption of protection, upon reconsideration apart from the fact that smallpox was contracted, is found to be based upon mistaken or ill-considered evidence. Probably the most infective stage of smallpox is the early stage, when lesions are present in the mouth, nose, and throat. "Return" cases, contracted from cases released too early from hospitals, are unusual, but the crusts are infectious, and patients should not be discharged from isolation until the skin, including the soles of the feet, is free from the primary crusts of the eruption. This may be within three weeks after the onset. The infection may be carried by inanimate objects which have been contaminated from cases of the disease, but such infection is not persistent.

Epidemics can not be stopped by isolation without vaccination, nor prevented without required vaccination.

HEALTH OF THE SCHOOL CHILD IN ENGLAND AND WALES

A Review of the Eighteenth Annual Report (1925) on the School Work of the Board of Education

The duties of the School Medical Service of England and Wales fall under the following three main headings: (1) Inspection for discovery of defects and disease; (2) curative measures; and (3) preventive measures.

For these purposes are required a staff of doctors, dentists, nurses, and clerks with requisite premises and equipment.

Inspection includes—(1) The annual routine medical examination of three age groups: (*a*) Entrants, (*b*) all pupils over 12 years of age in secondary schools, and (*c*) special cases outside the routine groups; (2) follow-up and reexamination of all children previously examined and found with defects; (3) dental examination of all younger children with annual reexamination; (4) examination of all children periodically by nurses for cleanliness.

Curative measures include arrangement for treatment of minor ailments, defective eyesight, dental disease, diseased tonsils and adenoids, skin diseases.

Preventive measures are the most vital of all service rendered by school medical workers. The remedy of defects was the intent of

the law, but more should be done. The child must be trained in health; the body and mind are to be prepared for healthy growth.

The crucial test of medical service to school children is the enduring benefit of good health in later life.

Approximately 5,000,000 children attend the elementary schools in England and Wales; 1,798,397, or more than one-third, were examined in the routine method; 820,953 more were inspected as special cases, making a total of 2,619,350 children examined.

The staff required to do this was—

(*a*)	School medical officers, whole-time	261
	Officers for school and public health, whole-time	567
	Part-time officers	312

This made approximately 1 whole-time medical officer to 8,500 school children.

(*b*)	School nurses, whole-time	1, 166
	Nurses, part-time for schools	1, 317
	Nurses, part-time	42
	District nurses	1, 995

This is equivalent to 1,745 whole-time nurses for school work, or 1 to 2,950 children.

(*c*)	Dentists, whole-time for school work	259
	Dentists, part-time for school work	325

This is equivalent to 354 whole-time dentists, or 1 to 14,000 children.

(*d*)	Specialists, whole-time for school work	16
	Specialists, part-time for school work	770

The comparison of the children of England and Wales with the London children is interesting in that the children of London show less defects.

TABLE 1.—*Comparison of percentage of pupils in the elementary schools requiring treatment in England and Wales (exclusive of London) and in London*

Group	Percentage of children found to require treatment	
	England and Wales (excluding London)	London
Code groups:		
Entrants	23. 1	16. 7
Intermediates	26. 8	20. 0
Leavers	24. 5	20. 3
Total (code groups)	24. 6	18. 7
Other routine inspections	26. 0	17. 1

To the figures on which these rates are based should be added the defects of the "special cases" referred for treatment, which brings the total number of children found in need of treatment during the year to approximately 800,000. Table 2 gives the incidence per 1,000 inspected, of the more important defects, sufficiently severe to require treatment.

TABLE 2.—*Incidence of the more important defects, sufficiently severe to require treatment*

Group	Routines (incidence per thousand)	Specials (incidence per thousand)
Malnutrition	9.5	8.3
Defective vision	54.7	73.0
Squint	9.1	12.2
Other eye diseases	9.5	53.7
Defects of hearing	5.4	9.8
Otitis media	6.3	25.0
Enlarged tonsils and adenoids	53.3	47.6
Other throat and nose defects	6.2	22.0
Organic heart disease	2.2	3.0
Pulmonary tuberculosis—		
(a) Definite	.5	2.1
(b) Suspected	1.6	5.1
Nonpulmonary tuberculosis	1.1	4.1
Deformities	7.1	8.6
Nervous diseases	1.8	7.1

In the follow-up work, upon which depends the success of corrective treatment, great importance is given to the necessity of securing the cooperation of the head teacher. It seems that he wields an enormous influence in the community. The value of the nurse for follow-up work is well known and needs no comment.

The arrangements for treatment for dental and eye defects and diseased ears, tonsils, and adenoids is a great problem. School clinics have developed rapidly, there being now 1,395 of these. Hospital facilities for treatment of these defects have been provided in 486 hospitals by 242 different local school authorities.

A few figures on the number of defects found and treated are significant. It was estimated that 80 per cent of the children found with visual defect were given proper treatment; 178,542 children were refracted. Of 134,880 children with diseased tonsils, 60,871 (or 45 per cent) were treated by operation. The total number of children given dental inspection was 2,038,988. Of this number, 768,146, or 56 per cent of those found in need of treatment, were treated.

TABLE 3.—*Number of secondary schools and number of pupils inspected*

	1923	1924	1925
Number of secondary schools, etc	997	1,000	1,040
Number of pupils inspected	132,000	132,000	150,800

The incidence of defects found in secondary schools is given in Table 4.

TABLE 4.—*Incidence of defects in secondary schools*

Defect	Incidence of defect per 1,000 pupils		
	1923	1924	1925
Malnutrition	4	7	4
Skin disease	7	10	3
Defective vision	71	79	82
Squint	2	2	2
Eye disease	5	5	5
Defective hearing	5	4	4
Ear disease	4	4	4
Nose and throat	26	25	25
Enlarged cervical glands	3	3	3
Defective speech	1	1	----------
Heart disease:			
Organic	2	2	2
Functional	3	3	3
Anemia	12	13	13
Lung disease	2	3	3
Tuberculosis (pulmonary):			
Definite	----------	----------	----------
Suspected	1	1	----------
Nonpulmonary	----------	----------	----------
Disease of the nervous system	2	2	2
Deformities	34	32	30
Other defects and disease	23	25	22

Malnutrition is not so common in these older children. The serious defects are less in this group than in the younger children, with the exception of two conditions. Visual defects show an increase. Deformities show an enormous increase, but it should be explained that a large proportion of these are slight lateral spinal curvatures and flat feet. These conditions were not given special attention on the examination of children in the elementary schools.

The teaching of hygiene is becoming more and more important. The development of sound principles of health is of far more value than the learning of concrete facts.

Special schools for physical and mental defectives do not meet the necessary demand.

Open-air schools are strongly approved. It was noted that the delicate children in open-air schools do not have the outbreaks of "common colds" so prevalent in the ordinary schools. There are about 75,000 children in England and Wales recommended for open-air school attendance. About 12,000 of these children were in open-air schools at some time during the year.

Nursery schools are increasing, 27 now being open. Their value is becoming more apparent each year. The nursery school may have far-reaching influences. The close linking up of the nursery school with infant welfare centers, nursery schools, and the school medical service give the best results. A relatively large number of physical defects can here be corrected.

The cost of medical school inspection and treatment is always of paramount interest. The following table summarizes the expenditures for the years 1921–22 to 1924–25.

TABLE 5.—*Cost of medical school inspection and treatment*

Item	1921–22	1922–23	1923–24	1924–25
Salaries	£966, 564	£814, 813	£841, 199	£887, 416
Traveling expenses	56, 190	50, 428	51, 022	52, 978
Drugs, materials, apparatus, and provision of spectacles	61, 380	50, 671	52, 738	61, 153
Contributions to hospitals, infirmaries, nursing associations, etc.	139, 704	129, 250	132, 034	141, 268
Provision of premises (clinics, administrative offices, etc.), stationery, printing, postage, and miscellaneous objects	164, 768	147, 926	143, 275	157, 532
Total	1, 391, 606	1, 223, 088	1, 220, 268	1, 300, 347

The cost of school medical service was about 2.5 per cent of the cost of public elementary education. In other words, out of every $100 spent on education, $2.50 went for school medical service. In the United States in 1920 about $1.50 out of every $100 for education went to school health work.

The problem of the preschool child is well recognized. The examination of this group is considered to be the most important part of the routine of work in schools. The chief causes of ailments in this group are faulty nutrition, dental disease, ear trouble, tuberculosis, rheumatism, skin lesions, uncleanliness, nervous conditions, diseased tonsils, and adenoids.

The most interesting part of this annual report is the discussion of the evidence of improvement of the health of children on entering school. The medical school work has been in existence for about 20 years. The school medical service can not affect the preschool child except to gain the interest of the mother in the health of her children. But does the infant welfare service show any results? This is most difficult to measure. The changes in personnel and the alterations in standards developed even with investigators unchanged make measurements difficult. Defect and disease are relative terms and are difficult of comparison in different children.

The grosser forms of defects and diseases have diminished, particularly those conditions due to uncleanliness and vermin. The actual toll of defects rather than their nature show little improvement. Nutrition, dental defects, defects of circulation, heart and lungs, deformities, and rickets are practically unchanged. There is a slight improvement in diseases of the eye and squint and ear defect.

However, the general physique of children on admission to school is slightly better than it was before the war. This is shown in Table 6.

TABLE 6.—*Physique of children aged 5 years*

	1913	1914	1917	1918	1919	1922	1923	1924
Average height in inches:								
Boys	40.7	40.4	41.1	40 9	41.4	41.1	41.5	41.4
Girls	40 2	40.3	40.3	40 4	41 1	41.0	41.1	40.8
Average weight in pounds:								
Boys	38 8	38.4	38.6	38 8	39.2	39.6	39.9	39.7
Girls	37.7	37.6	37.9	37.5	37.8	38.3	38.5	38.3

The fundamental principles for improving the health of the preschool child are (1) good stock, (2) efficient mother, and (3) effective medical service to aid her.

Good stock can not be created. Maternal efficiency can be brought about and medical service can be given by the State.

The feature of medical treatment receives special attention in England and Wales. There is a constant development year by year. The scope of treatment is being widened. Conditions treated are ringworm of the scalp; defective vision, which includes the furnishing of spectacles; adenoids and diseased tonsils; deafness and ear disease; orthopedic treatment; and artificial light treatment. Dental inspection and treatment constitute a very important part of special treatment.

Physical education is not receiving the attention it should as, generally, local educational authorities have not yet fully understood its importance.

School meals received special mention. An investigation was made near London by Doctor Mann. His results show that boys receiving milk, supplementary to an adequate diet, gained considerably more in height and weight than did boys who had an adequate diet but no milk.

The infectious diseases took their annual toll. The big four—whooping cough, measles, diphtheria, and scarlet fever—still occupy the van of the destroyers of children. Pneumonia (all forms) still takes first place.

A total of 94,669 children under 15 years of age died during the year. The percentage of the principal causes were as follows:

Diseases of the respiratory system	24
Prematurity and congenital conditions	23
Certain infectious diseases	17
Diarrhea and digestive diseases	10
Tuberculosis	6
All other causes	20

It is of consequence to note that whooping cough caused 6,039 deaths, or 6.2 per cent of the total deaths under 15 years of age (5,855 under 5 years). Yet we in the United States continue to hold whooping cough as of minor importance.

Measles and whooping cough are not of serious concern as causes of death in children over 5 years of age; but diphtheria, tuberculosis, and pneumonia, diseases of the digestive system, and accidents remain high.

The report ends with a summary of a study of physical fitness of adults and raises the question whether the tests can be applied to school children.

The annual report, on the whole, is most interesting, because it summarizes the health work done with the school children of a population of 35,000,000, a report impossible to duplicate in this country.

MUNICIPAL HEALTH DEPARTMENT PRACTICE IN 1923

Report Based on a Survey of 100 Cities of 70,000 or More Population [1]

In 1921 the United States Public Health Service cooperated with the committee on municipal health practice of the American Public Health Association in making a survey of the health department practice in 83 large cities.[2] In September, 1923, the office of administrative health practice in the Public Health Service was established for the purpose of cooperating with the committee on administrative practice of the American Public Health Association in a resurvey of the large cities. This survey was made during 1924, and the report is just off the press. The data that form the basis of the report represent, in most instances, conditions of the calendar year 1923. The information was obtained by means of field surveys, conducted by approximately 50 medical officers and sanitary engineers of the Public Health Service, selected primarily because of their previous experience in survey investigations.

The objectives of the survey included the collection of information in regard to public health practice, together with a critical analysis of the data and an attempt to devise means of bringing objective standards of practice to the attention of individual health officers.

The report constitutes a study of the health service provided in a group of 100 of the largest cities in the United States having a population of 70,000 or more each according to the census of 1920, and an aggregate estimated population at mid year 1923 of 32,155,096. It is divided into two sections. Section 1 contains the analysis of all the data collected concerning the principal health activities studied and the opinions and conclusions of the authors themselves. Section 2 presents a summary of the data secured on the health department organizations and services of the individual cities.

[1] Municipal health department practice for the year 1923, based upon surveys of the 100 largest cities in the United States. Public Health Bulletin No. 164. XVIII+782 pp.; 16 figs. Government Printing Office, Washington, D. C. Price, $1.25 per copy.

[2] Public Health Bulletin No. 136, July, 1923.

The essential health activities included in the report are as follows: I. Public health administration: A. Organization and personnel; B. Expenditures. II. Educational problems: A. Public health training; B. Popular health education. III. Vital statistics. IV. Control of communicable diseases. V. Hospitals and dispensaries. VI. Tuberculosis prevention and control: A. Analysis of provisions employed for the prevention and control of tuberculosis; B. General discussion of some of the essential problems concerned in the control of tuberculosis. VII. Venereal disease control. VIII. Infant hygiene. IX. School health supervision: A. Analysis and discussion of data; B. Proposed plan of organization; C. Health of children in industry. X. Mental hygiene. XI. Industrial hygiene. XII. Municipal public health nursing. XIII. Public health laboratories. XIV. Milk control. XV. Food and drug control. XVI. Water supplies. XVII. Sewage and excreta disposal. XVIII. General sanitation.

The report on each of the above-mentioned activities is presented by persons especially qualified by experience and training to deal with the particular subject, to express critical opinions, and to present reliable conclusions. In addition, each author presents a plan which, in his opinion, represents the best practice at the present time as shown by his interpretation of the present practice in the entire group of cities studied.

The report presents an enormous mass of valuable data and undoubtedly represents the most comprehensive study of the kind that has ever been made.

It may be purchased through the Superintendent of Documents, Government Printing Office, at $1.25 per copy.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Responsibility of Municipalities, Water Companies, and Individuals for Water-Borne Illness. Isaac D. Rawlings and Harry F. Ferguson. *Journal of the American Water Works Association*, vol. 16, No. 4, October, 1926, pp. 415–426. (Abstract by E. A. Reinke.)

This article describes four water-borne epidemics in Illinois in 1925. Greenville, which obtains water from tubular wells, received contaminated water due to a clogged sewer backing up and flowing through a gravity tile water line between a receiving basin and a reservoir. "No analyses were necessary to prove the pollution of the water in the collecting reservoir. The nose was sufficient." Sterling and Rock Falls, adjoining cities with the same supply, had 12 cases of water-borne typhoid fever, and at least 2 deaths, all from one factory, and due to cross connection with the sewage-polluted Rock River. Lockport had 15 cases and at least 3 deaths.

There is some uncertainty as to whether this epidemic was caused by the public water supply or a factory supply. Both supplies are from creviced limestone, and chlorination had been repeatedly recommended by the State department of public health because of the proximity of pollution such as sewers, privies, cesspools, and the sewage-polluted Chicago Drainage Canal. In November, 1925, at least one person in four at Charleston, with a population of 8,000, was affected by an explosive epidemic of diarrhea. The water works were badly mismanaged and poorly operated, the purified surface supply having been so turbid and dirty at times that water meters would not operate properly. The city has had one or more cases of typhoid fever practically every month for several years. Epidemiological data combined with other data relative to the water works showed conclusively that the water supply was responsible for the majority of the illness.

If the advice of the State department of public health had been followed, the four epidemics mentioned would not have occurred, as in all cases the responsible authorities had been notified and warned of the existing conditions. The attorney general of Illinois, in response to the department's inquiry, gave a legal opinion which is summarized as concluding "that cities, water companies, and individuals supplying water for general use are liable for injuries to health resulting from contamination of such waters if the owners or operators of such water supplies have not exercised reasonable care in discovering and preventing possible contamination of the supplies or have not given due warning to the consumers that the supplies are subject to dangerous contamination. Further, that a warning by the State department of public health to a city, water company, or individual distributing a water supply, which supply causes injuries to health, would not be conclusive of the liability of such city, company, or individual, but it would be a fact strongly tending to show that the owner of the supply knew of the dangerous conditions and would, therefore, practically establish the negligence of the city, company, or individual in failing to remove or prevent the contamination of the supply or to warn the public of the dangerous condition."

Securing Improved Technical Supervision of Water Purification Processes. H. E. Miller, director of bureau of sanitary engineering and inspection, State board of health, Raleigh, N. C. *Journal American Water Works Association*, vol. 16, No. 3, September, 1926, pp. 355–372. (Abstract by Frank Raab.)

This paper does not deal with improvements in the construction of purification plants but merely with improved supervision of purification processes. North Carolina, being essentially a surface water supply State, holds third place with regard to the number of small purification plants operated within its boundaries; Pennsylvania is first, and Ohio second.

A survey made of all the filter plants showed that 36 out of 50 would have either to be replaced or altered to a point where it practically amounted to the building of a new plant. To-day North Carolina has 78 filtered water supplies. Only one plant has technical supervision and complete laboratory control. In nearly all the other cases visual observation and rule of thumb procedure, constitute the only supervision. But despite this fact there was only one water-borne typhoid epidemic charged to the history of the State.

The supervision of purification plants is graded as follows: Filter plants serving cities of over 25,000 population should be provided with a trained operator and complete laboratory control; filter plants serving cities with a population from 25,000 to 10,000 should be provided with a trained operator; filter plants serving cities of less than 10,000 population are not considered economically within reach of a trained operator.

At Charlotte the technical supervision saved $5,000 in the cost of chemical supplies during the first year. Methodical and systematic training for filter plant was at once begun. The training was given by degrees and by various methods—some even by correspondence. Finally chemical and bacteriological training was also provided. Now the University of North Carolina offers a complete course in purification plant supervision. The men who were able to acquire an understanding of bacteriology were utilized to make bacterial counts of milk and to inspect dairies.

The article contains tables which show the source and the manner of treatment of the water supplies of a number of cities as well as the population and other data.

Experience in New York State on Resolution to Discontinue Cross Connections. C. A. Holmquist. *Journal American Water Works Association*, vol. 16, No. 3, September, 1926, pp. 330–335. (Abstract by Frank Raab.)

The State of New York has always looked with deep concern upon cross connections between potable public supplies and polluted auxiliary supplies. In 1906, 700,000 people were served with filtered or treated water. To-day the number has risen to 8,000,000. During this same period the typhoid death rate has dropped from 23.6 to 3.3 per 100,000 population. In 1918 two serious typhoid epidemics were attributed to cross connections. Now 12 municipalities in New York State, including New York City, prohibit cross connections between public supplies and private supplies. A study revealed that at least 38 recorded typhoid outbreaks could be traced to cross connections between public and polluted private supplies. Nine of these outbreaks were in the State of New York and two of them totaled 257 cases of typhoid.

A careful investigation showed further that there is neither a single nor double valve, nor any other type of valve, on the market that

will prevent all flow through cross connections. A State law prohibits all cross connections except the type that is specified. But after July 1, 1928, the latter type, too, is prohibited.

Review of Sugar Factory Wastes in Czechoslovakia. Anon. (Typed report, 8 p.) From the Ministry of Health, Czechoslovakia. (Abstract by J. K. Hoskins.)

Sugar factory wastes may be divided into four types according to origin and chemical contents as follows: (1) Water from beet sluices and washers; (2) condensation water; (3) waters from "laver," where carbon dioxide is being washed; (4) water from diffusion and beet slice presses.

Wastes of (1) contain considerable amounts of earth, beet roots, and some beet juice. Coarse material is screened out, sand and grit are settled in tanks, and the supernatant liquor is treated with lime and sometimes allowed to ferment. Water (2) is not objectionable except for high temperatures and may be cooled before discharge into streams or may be reused. Wastes (3) contain alkaline salts, such as sulphates, as well as dissolved CO_2. Diffusion waters (4) contain dissolved organic matters and beet "crumble." They are sometimes mixed with (1) and treated in tanks with lime and the supernatant liquor is discharged without further purification, which method does not remove the dissolved organic matter or lessen the danger to aquatic life in the receiving stream. Biological purification either in well drained soil or in filters is advisable, but difficult because of high costs and low winter temperatures.

Methods that have proved unsuccessful are enumerated, such as (*a*) treatment with iron sulphate, water glass, and milk of lime and later saturation of the liquor with gas such as CO_2 prior to secondary sedimentation and filtration; (*b*) use of iron chloride and milk of lime; (*c*) dosing with milk of lime followed by broad irrigation. As a result, only mechanical sedimentation is at present used, with special attention given to sludge removal.

Studies of the beet constituents detrimental to fish life made by Prof. E. R. Kobert indicate that the acid and neutral saponin in dilutions of 1 to 160,000 affect fish, and on long contact may be fatal, Prof. Ferd Schulz found that 5mg. of acid saponin killed fish, and that beet wastes (4) caused poisoning in concentrations of 5 to 10 per cent.

The quantity of diffusion waters averages 130 per cent of the weight of beets handled, and of waters from the slice-presses 30 per cent. Less polluting wastes (1), (2), and (3) average 800 per cent of the beet weight.

The Examination of Spoiled Canned Foods. E. J. Cameron and J. R. Esty. *Journal of Infectious Diseases*, vol. 39, No. 2, August, 1926, pp. 89–105. (Abstract by C. T. Butterfield.)

An extensive and thorough study of the bacteriology of spoiled canned foods was made, considering both the "swells" and "flat

sours" types of spoilage. When spoilage is due to under-sterilization, "swells" *result from anaerobic fermentation, and "flat* sours" are due to the activity of facultative anaerobic types.

In their study the authors have included: (1) General characteristics of the major groups of bacteria found; (2) nomenclature of organisms; (3) distribution in nature in United States; (4) growth of these bacteria in foods and their products.

They found that, apparently, sound canned foods are not universally sterile but contain aerobic spore formers and that such organisms are not a cause of unsoundness.

Two large thermophilic groups were defined as causing "flat sours." Group 80, a facultative thermophilic group of 51 cultures, isolated in pure culture from various canned foods, produced "flat sours" when similar canned foods were inoculated. Group 100, an obligative thermophilic group of 42 cultures, reacted in the same manner.

Investigation of Food Poisoning Outbreak in Peoria. Thomas J. Brophy, quarantine officer, Illinois Department of Public Health. *Illinois Health News*, vol. 13, No. 11, November 1926, pp. 386–393. (Abstract by Isador W. Mendelsohn.)

An account is given of an outbreak of food poisoning involving 96 cases out of 161 people attending a picnic near Peoria, Ill., on August 31, 1926. The cause of the infection is attributed to veal loaf.

MILK-BORNE TYPHOID OUTBREAK AT WESTFIELD, N. J.—A CORRECTION

In Public Health Reports for January 7, 1927, page 11, appeared an abstract of a report by W. T. Eakins, assistant epidemiologist of the New Jersey State Department of Health, on a milk-borne outbreak of typhoid fever at Westfield, N. J. In the abstract the statement was made that "An insanitary privy was suspected to be the probable source of infection." Mr. Eakins states that this conclusion is not in accord with the facts nor justified from his report, the evidence clearly indicating that the milk was infected by a dairy worker who handled the milk while affected with an unrecognized case of typhoid fever. The insanitary privy was mentioned in the report merely as a feature of the dairy premises.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for November, 1926

The accompanying table is taken from the Statistical Bulletin for December, 1926, published by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance

department of the company for November, 1926, as compared with October, 1926, and with November and year, 1925. The rates are based on the records of approximately 17,000,000 insured persons in the industrial populations of the United States and Canada.

The death rate for this group for November (8.4 per 1,000 persons exposed) shows a considerable seasonal increase over the rate for October (7.9). It is also slightly higher than the rate for the month of November of last year (8.2), this increase being caused in most part by higher mortality from tuberculosis, cancer, and the "degenerative diseases."

The health conditions in this group of persons with respect to the epidemiological diseases of childhood, with the exception of measles, are good. The measles outbreak of 1926 has apparently run its course. The diphtheria mortality in November was slightly lower than in the corresponding month of last year.

It is stated that diabetes has recorded a higher death rate in 7 of the first 11 months of 1926 than in the same months of last year, and it is predicted that this disease will probably register a higher death rate for the year 1926 than for either 1925 or 1924. It is noted that the current rate for diabetes differs little from the rate prevailing 10 years ago, and is considerably higher than the rate of 15 years ago.

The suicide rate continues above average, while the homicide rate is lower than that for last year.

Death rates (annual basis) for principal causes per 100,000 lives exposed, October and November, 1926, and November and year, 1925

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed [1]			
	November, 1926	October, 1926	November, 1925	Year 1925
Total, all causes	837.5	785.8	819.1	907.5
Typhoid fever	6.1	6.2	5.7	4.6
Measles	1.2	1.3	1.8	3.3
Scarlet fever	3.2	2.0	2.0	3.5
Whooping cough	6.0	6.1	3.9	7.7
Diptheria	12.7	10.5	11.1	10.6
Influenza	13.3	6.9	14.1	22.0
Tuberculosis (all forms)	84.6	78.1	80.1	98.1
Tuberculosis of respiratory system	75.2	68.9	71.4	85.9
Cancer	71.2	69.7	67.6	70.5
Diabetes mellitus	15.8	13.9	12.0	15.2
Cerebral hemorrhage	49.8	46.4	48.1	53.6
Organic diseases of heart	123.6	106.7	121.9	126.6
Pneumonia (all forms)	70.6	48.7	78.7	86.5
Other respiratory diseases	11.6	11.0	11.9	13.2
Diarrhea and enteritis	27.3	49.3	30.2	36.7
Bright's disease (chronic nephritis)	69.4	62.0	63.5	69.8
Puerperal state	11.0	11.8	15.4	16.5
Suicides	7.9	7.9	6.7	6.9
Homicides	7.2	6.8	7.3	7.2
Other external causes (excluding suicides and homicides)	61.7	58.0	58.8	64.3
Traumatism by automobiles	19.5	19.5	17.4	16.6
All other causes	183.4	188.0	175.3	190.7

[1] All figures include infants insured under 1 year of age.

MORTALITY SUMMARY FOR 78 LARGE CITIES, 1926

Number of deaths, death rates, and infant mortality in 78 large cities of the United States for 1926 [1] and comparison with 1925

[From the Weekly Health Index, Bureau of the Census, Department of Commerce]

City [2]	Total deaths [3]	Death rate [4]	Deaths under 1 year [3]	Provisional infant mortality rate 1926 [4, 5]	Infant mortality rate 1925	Mortality data for calendar year, 1925 [6]: Total deaths	Death rate	Deaths under 1 year
Total (68 cities)	391, 614	13.2	45, 766	[7] 71	[7] 71	366, 755	12.8	45, 844
Akron [8]	2, 061		361	73	64	1, 901		310
Albany	2, 036	16.8	158	62	76	1, 845	15.7	190
Atlanta [8, 9]	3, 981		544			3, 919		364
White	1, 950		262			1, 979		278
Colored	2, 031		282			1, 940		286
Baltimore	12, 440	15.1	1, 365	80	82	11, 648	14.6	1, 394
White	9, 395	13.4	944	69	72	8, 718	12.8	994
Colored	3, 045	25.2	421	124	122	2, 930	25.0	400
Birmingham [9]	3, 729	17.4	513			3, 504	17.0	506
White	1, 748	13.4	229			1, 583	12.7	236
Colored	1, 981	23.5	284			1, 921	23.7	270
Boston	11, 939	14.9	1, 584	84	85	11, 576	14.8	1, 585
Bridgeport [8]	1, 717		229	80	54	1, 541		164
Buffalo	7, 862	14.2	1, 034	82	86	7, 434	13.8	1, 076
Cambridge	1, 500	12.1	192	64	61	1, 428	11.9	178
Camden	1, 803	13.5	262	85	87	1, 775	13.8	271
Canton	1, 188	10.6	212	95	76	1, 109	10.5	180
Chicago	36, 299	11.7	4, 096	67	75	34, 318	11.5	4, 460
Cincinnati	7, 237	17.3	769	90	77	6, 526	16.0	647
Cleveland	10, 786	11.1	1, 384	69	66	9, 709	10.4	1, 324
Columbus	4, 057	14.0	423	74	80	3, 894	13.9	446
Dallas [9]	2, 767	13.4	432			2, 657	13.7	470
White	2, 129	11.9	356			2, 033	12.1	391
Colored	638	23.2	76			624	23.9	79
Dayton	2, 172	12.1	266	83	57	1, 962	11.3	181
Denver [9]	4, 038	13.9	395			4, 136	14.7	464
Des Moines	1, 763	11.9	144	45	60	1, 518	10.7	187
Detroit	16, 428	12.5	2, 910	87	80	13, 677	11.0	2, 564
Duluth	1, 187	10.3	126	51	66	1, 114	10.0	149
El Paso [9]	1, 726	15.6	367			1, 788	17.0	350
Erie [8]	1, 556		214	79	65	1, 295		173
Fall River	1, 753	13.2	282	94	91	1, 590	12.3	302
Flint	1, 297	9.4	267	82	74	1, 007	7.7	229
Fort Worth [9]	1, 587	9.8	215			1, 544	10.0	196
White	1, 291	9.1	179			1, 258	9.3	174
Colored	296	15.3	36			286	15.1	22
Grand Rapids	1, 800	11.4	240	66	69	1, 767	11.5	249
Houston [8, 9]	2, 883		322			2, 607		351
White	1, 931		218			1, 699		242
Colored	952		104			908		109
Indianapolis	5, 250	14.1	516	76	70	4, 951	13.8	479
White	4, 417	13.5	411	70	63	4, 152	13.1	376
Colored	833	18.6	105	121	113	799	18.9	103
Jersey City	3, 879	12.0	483	68	68	3, 675	11.7	471
Kansas City, Kans	1, 607	13.5	182	67	88	1, 654	14.3	235
White	1, 185	12.1	122	51	74	1, 231	12.7	173
Colored	422	20.3	60	172	181	423	21.8	62
Kansas City, Mo. [9]	5, 233	13.7	595			5, 087	13.9	586
Los Angeles [8]	12, 342		1, 110	60	67	11, 475		1, 246
Louisville	4, 718	14.9	526	85	81	4, 307	14.3	494
White	3, 565	13.3	411	75	75	3, 288	12.8	400
Colored	1, 153	24.1	115	152	126	1, 019	22.1	94
Lowell	1, 586	14.1	219	80	84	1, 553	14.1	228

[1] For 53 weeks ended Jan. 1, 1927.

[2] For the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

[3] Based upon telegraphic reports received each week from city health officers.

[4] Allowance has been made for the 6 extra days, which must be deducted from the 53 weeks to give a period of 365 days.

[5] Infant mortality rate is based upon deaths under 1 year as returned each week and estimated births, 1920.

[6] Based upon deaths which occurred within the calendar year.

[7] Infant mortality rate for the cities in the birth registration area, appearing in the summary.

[8] Mortality rates are omitted, pending the establishment of more satisfactory estimates of population.

[9] Cities with no infant mortality rate are not in the registration area for births.

Number of deaths, death rates, and infant mortality in 78 large cities of the United States for 1926 and comparison with 1925—Continued

City	Total deaths	Death rate	Deaths under 1 year	Provisional infant mortality rate 1926	Infant mortality rate 1925	Mortality data for calendar year, 1926		
						Total deaths	Death rate	Deaths under 1 year
Lynn	1,202	11.4	123	61	78	1,169	11.3	154
Memphis [9]	3,576	19.9	405			3,374	19.3	418
White	1,759	15.2	189			1,559	14.0	189
Colored	1,817	28.4	216			1,815	28.7	259
Milwaukee	5,715	10.9	819	72	82	5,549	10.9	901
Minneapolis	5,060	11.5	509	54	61	4,928	11.6	571
Nashville [9]	2,752	19.8	351			2,349	17.3	298
White	1,606	16.1	226			1,386	14.3	186
Colored	1,146	28.9	125			963	24.8	112
New Bedford	1,532	12.6	290	95	80	1,395	11.7	241
New Haven	2,219	12.2	297	79	66	2,171	12.1	252
New Orleans [9]	8,080	19.0	828			7,944	19.2	987
White	4,729	15.0	408			4,549	14.8	522
Colored	3,351	30.2	420			3,395	31.6	465
New York	77,438	12.9	8,648	67	65	71,835	12.2	8,308
Bronx Borough	9,285	10.1	783	47	57	8,295	9.5	897
Brooklyn Borough	26,192	11.5	3,284	64	60	21,824	11.3	3,053
Manhattan Borough	32,704	17.1	3,615	80	71	29,819	15.3	3,352
Queens Borough	6,934	8.9	765	62	72	7,030	9.8	825
Richmond Borough	2,323	16.0	201	71	61	1,867	13.5	181
Newark, N. J	5,501	11.8	745	70	68	5,308	11.7	734
Norfolk	1,870	10.6	223	85	97	1,771	10.5	250
White	844	7.5	70	43	59	831	7.7	95
Colored	1,026	16.0	153	153	158	940	15.4	155
Oakland	2,871	10.8	286	63	53	2,586	10.2	237
Oklahoma City [8, 9]	1,291		141			1,176		152
Omaha	2,844	13.0	292	61	67	2,813	13.3	331
Paterson	1,878	12.9	188	63	63	1,711	12.0	195
Philadelphia	28,195	13.8	3,023	76	77	26,045	13.2	3,007
Pittsburgh	9,110	14.1	1,235	81	82	9,383	14.8	1,280
Portland, Oreg.[8]	3,436		185	37	46	3,332		239
Providence	3,615	12.9	425	68	64	3,309	12.4	309
Richmond	3,094	16.1	412	103	91	2,740	14.7	379
White	1,749	12.8	184	70	67	1,572	12.0	181
Colored	1,345	24.1	228	163	132	1,168	21.4	198
Rochester	4,181	12.8	410	65	64	3,839	12.1	424
St. Louis [9]	11,733	13.9	1,060			11,341	13.8	1,041
St. Paul	2,970	11.8	190	33	58	3,120	12.7	344
Salt Lake City	1,749	12.9	218	63	46	1,532	11.7	156
San Antonio [9]	3,052	14.6	599			3,029	15.3	563
San Diego	1,909	17.1	112	45	55	1,770	16.7	135
San Francisco	7,854	13.6	373	44	56	7,397	13.3	479
Schenectady	1,100	11.6	122	69	68	1,057	11.4	[illegible]
Seattle [8]	3,606		219	43	45	3,372		[illegible]
Somerville	1,103	10.9	109	74	77	1,101	11.1	[illegible]
Spokane	1,545	13.9	135	64	55	1,386	12.7	142
Springfield, Mass	1,835	12.5	207	60	68	1,782	12.5	123
Syracuse	2,547	13.5	281	68	68	2,202	12.6	220
Tacoma	1,281	11.9	113	50	44	1,243	12.0	280
Toledo	3,807	12.7	444	81	81	3,494	12.2	97
Trenton	2,052	15.1	232	76	80	1,873	14.2	438
Utica	1,714	16.4	177	76	75	1,516	14.9	246
Washington, D. C	7,526	14.0	759	83	87	7,015	13.6	[illegible]
White	4,681	11.7	409	65	67	4,293	11.0	410
Colored	2,842	20.9	350	121	132	2,722	22.0	377
Waterbury [8]	1,188		179	80	83	1,083		183
Wilmington, Del	1,633	13.0	191	89	87	1,435	11.8	204
Worcester	2,755	14.0	302	68	75	2,547	13.4	327
Yonkers	1,227	10.4	167	72	69	1,144	10.1	159
Youngstown	1,792	10.7	309	82	74	1,706	10.7	304

[8] Mortality rates are omitted, pending establishment of more satisfactory estimates of population.
[9] Cities with no infant mortality rates are not in the registration area for births.

DEATHS DURING WEEK ENDED JANUARY 15, 1927

Summary of information received by telegraph from industrial insurance companies for week ended January 15, 1927, and corresponding week of 1926. (From the Weekly Health Index, January 20, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 15, 1927	Corresponding week, 1926
Policies in force	66, 596, 510	62, 779, 250
Number of death claims	13, 673	13, 483
Death claims per 1,000 policies in force, annual rate	10. 7	11. 2

Deaths from all causes in certain large cities of the United States during the week ended January 15, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, January 20, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 15, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 15, 1927 [2]
	Total deaths	Death rate [1]		Week ended Jan. 15, 1927	Corresponding week, 1926	
Total (67 cities)	7,834	13.8	14.6	800	848	[3] 67
Akron	33			8	7	86
Albany [4]	35	15.2	21.5	3	2	63
Atlanta	75			14	1	
White	32			5	0	
Colored	43	(5)		9	1	
Baltimore [4]	246	15.7	19.9	24	25	74
White	182		18.1	18	21	69
Colored	64	(5)	30.7	6	4	93
Birmingham	73	17.7	19.0	8	9	
White	39		14.3	3	2	
Colored	34	(5)	26.4	5	7	
Boston	224	14.7	16.6	21	20	59
Bridgeport	44			1	8	19
Buffalo	168	15.9	14.9	23	19	97
Cambridge	24	10.1	12.8	4	5	71
Camden	29	11.4	12.3	3	5	52
Canton	33	15.2	10.9	4	2	95
Chicago [4]	732	12.3	13.4	82	76	71
Cincinnati	153	19.4	18.8	8	15	50
Cleveland	203	10.8	11.6	25	31	66
Columbus	94	16.8	11.7	14	4	130
Dallas	52	13.0	17.5	7	10	
White	42		15.7	6	7	
Colored	10	(5)	29.0	1	3	
Dayton	40	11.6	13.0	4	1	66
Denver	79	14.2	19.8	7	10	
Des Moines	31	10.8	12.1	1	2	17
Detroit	310	12.1	13.5	62	62	98
Duluth	35	15.9	9.2	5	4	108
El Paso	27	12.3	15.3	5	4	
Erie	25			0	3	0
Fall River [4]	30	11.8	18.3	7	10	124
Flint	21	7.7	8.4	3	5	49
Fort Worth	41	13.0	8.5	5	7	
White	35		8.2	5	4	
Colored	6	(5)	11.0	0	3	
Grand Rapids	39	12.8	11.0	5	1	73
Houston	49			4	10	
White	36			2	7	
Colored	13	(5)		2	3	
Indianapolis	98	13.7	12.8	6	9	47
White	84		12.3	4	8	36
Colored	14	(5)	16.6	2	1	122
Jersey City	77	12.5	13.3	14	7	105
Kansas City, Mo	113	15.4	15.0	5	14	
Los Angeles	295			26	14	74
Louisville	61	9.9	17.8	5	6	43
White	45		14.4	3	4	29
Colored	16	(5)	36.6	2	2	140

(Footnotes at end of table.)

Deaths from all causes in certain large cities of the United States during the week ended January 15, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Jan. 15, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 15, 1927
	Total deaths	Death rate		Week ended Jan. 15, 1927	Corresponding week, 1926	
Lowell	33	15.6	15.6	5	5	96
Lynn	21	10.4	15.5	2	5	53
Memphis	74	21.6	22.7	11	10	
White	41		10.7	10	5	
Colored	30	(5)	28.1	1	5	
Milwaukee	129	12.8	10.0	22	19	105
Minneapolis	86	10.1	14.7	9	22	51
Nashville [1]	50	18.9	17.9	6	2	
New Bedford	36	15.7	10.9	2	1	34
New Haven	43	12.1	11.5	1	3	14
New Orleans	154	18.9	22.5	16	22	
White	89		19.8	8	10	
Colored	65	(5)	30.1	8	12	
New York	1,591	13.9	13.7	145	119	60
Bronx Borough	188	10.6	11.1	15	17	[illegible]
Brooklyn Borough	536	12.3	11.6	59	61	61
Manhattan Borough	666	19.1	18.8	51	58	63
Queens Borough	151	9.7	9.3	11	11	47
Richmond Borough	50	17.7	19.3	6	2	112
Newark, N. J.	106	11.9	13.9	15	9	74
Norfolk	43	12.5	10.2	8	3	161
White	25		6.1	5	1	163
Colored	18	(5)	17.4	3	2	159
Oakland	72	14.1	16.2	8	6	94
Oklahoma City	32			4	1	
Omaha	49	11.7	13.8	7	4	78
Paterson	46	16.7	16.8	7	4	121
Philadelphia	573	14.7	16.0	42	68	56
Pittsburgh	236	19.1	15.9	29	21	101
Portland, Oreg.	74			2	4	21
Providence	70	13.0	17.4	12	12	102
Richmond	53	11.4	16.8	4	8	53
White	35		13.6	3	2	61
Colored	18	(5)	24.6	1	6	38
Rochester	59	9.5	11.3	0	7	0
St. Louis	229	14.2	15.2	13	13	
St. Paul	61	12.7	12.6	3	7	27
Salt Lake City [4]	34	13.0	10.6	5	1	70
San Antonio	74	18.3	15.3	7	6	
San Diego	49	22.2	16.1	1	1	21
San Francisco	169	15.3	17.0	6	10	37
Schenectady	17	9.5	15.7	1	1	30
Seattle	57			4	4	42
Somerville	27	13.8	17.7	2	0	72
Spokane	41	19.6	13.9	2	5	50
Springfield, Mass	36	12.8	13.7	2	5	81
Syracuse	53	14.0	12.7	4	2	51
Tacoma	28	13.6	12.8	3	3	71
Toledo	71	12.2	9.7	7	7	67
Trenton	37	14.1	18.3	1	6	17
Utica	34	17.2	18.7	4	3	91
Washington, D. C	165	15.9	19.2	13	18	75
White	104		17.1	8	9	68
Colored	61	(5)	25.3	5	9	92
Waterbury	22			1	4	24
Wilmington, Del	29	12.0	12.2	0	4	0
Worcester	49	13.1	15.9	6	2	72
Yonkers	12	5.3	6.7	2	5	45
Youngstown	27	8.3	10.1	7	6	98

1 Annual rate per 1,000 population.
2 Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
3 Data for 63 cities.
4 Deaths for week ended Friday, Jan. 14, 1927.
5 In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk 38; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control diseases without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended January 22, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	53
Diphtheria	26
Influenza	100
Lethargic encephalitis	1
Malaria	8
Measles	60
Mumps	22
Ophthalmia neonatorum	1
Pellagra	5
Pneumonia	68
Poliomyelitis	1
Scarlet fever	39
Smallpox	27
Tetanus	1
Trachoma	1
Tuberculosis	14
Typhoid fever	5
Typhus fever	1
Whooping cough	28

ARIZONA

Chicken pox	4
Diphtheria	5
Influenza	14
Measles	35
Scarlet fever	9
Trachoma	80
Tuberculosis	17
Whooping cough	3

ARKANSAS

Cerebrospinal meningitis	1
Chicken pox	70
Diphtheria	15
Hookworm disease	2
Influenza	121
Malaria	13
Measles	36
Mumps	32
Ophthalmia neonatorum	3
Pellagra	5

ARKANSAS—continued

	Cases
Scarlet fever	6
Smallpox	7
Tuberculosis	12
Typhoid fever	8
Whooping cough	33

CALIFORNIA

Cerebrospinal meningitis:	
Sacramento	1
Tuolumne County	1
Chicken pox	503
Diphtheria	181
Influenza	39
Jaundice (epidemic)	2
Lethargic encephalitis:	
Berkeley	1
Long Beach	1
Measles	1,687
Mumps	208
Poliomyelitis:	
Kern County	1
Mayfield	1
Scarlet fever	280
Smallpox:	
Sacramento County	32
Scattering	30
Tuberculosis	186
Typhoid fever	14
Whooping cough	91

COLORADO

Chicken pox	18
Diphtheria	7
German measles	2
Measles	51
Mumps	7
Paratyphoid fever	3
Pneumonia	14
Scarlet fever	70
Septic sore throat	2
Smallpox	28
Tuberculosis	21
Typhoid fever	1

CONNECTICUT

	Cases
Cerebrospinal meningitis	1
Chicken pox	122
Conjunctivitis (infectious)	2
Diphtheria	38
German measles	4
Influenza	28
Measles	49
Mumps	28
Pneumonia (broncho)	52
Pneumonia (lobar)	57
Scarlet fever	111
Septic sore throat	2
Tuberculosis (all forms)	29
Typhoid fever	2
Whooping cough	58

DELAWARE

Anthrax	1
Chicken pox	3
Diphtheria	5
Influenza	2
Pneumonia	1
Scarlet fever	37
Tuberculosis	2
Whooping cough	6

FLORIDA

Chicken pox	35
Diphtheria	53
Influenza	5
Malaria	2
Measles	25
Mumps	13
Pellagra	1
Pneumonia	7
Poliomyelitis	1
Scarlet fever	37
Smallpox	34
Tuberculosis	11
Typhoid fever	6
Whooping cough	5

GEORGIA

Cerebrospinal meningitis	2
Chicken pox	48
Dengue	1
Diphtheria	40
Influenza	173
Malaria	9
Measles	72
Mumps	11
Pellagra	2
Pneumonia	46
Scarlet fever	14
Septic sore throat	14
Smallpox	115
Tuberculosis	12
Typhoid fever	12
Whooping cough	35

IDAHO

Chicken pox	24
Diphtheria	6
Measles	69
Mumps	9
Scarlet fever	39
Smallpox	13
Tuberculosis	4
Whooping cough	1

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	3
Will County	1
Chicken pox	192
Diphtheria	130
Influenza	100
Measles	1,718
Mumps	239
Pneumonia	378
Scarlet fever	397
Smallpox:	
Clay County	20
Scattering	23
Tuberculosis	258
Typhoid fever	14
Whooping cough	108

INDIANA

Chicken pox	152
Diphtheria	51
Influenza	89
Measles	156
Pneumonia	24
Scarlet fever	195
Smallpox	132
Tuberculosis	33
Typhoid fever	2
Whooping cough	54

IOWA

Chicken pox	44
Diphtheria	2
German measles	2
Influenza	1
Measles	405
Mumps	15
Pneumonia	3
Poliomyelitis—West Liberty	1
Scarlet fever	71
Smallpox	11
Tuberculosis	15
Vincent's angina	1
Whooping cough	19

KANSAS

Cerebrospinal meningitis:	
Kansas City	1
St. Francis	1
Chicken pox	202
German measles	4
Influenza	3
Malaria	1
Measles	285
Mumps	20
Pellagra	1
Pneumonia	64
Poliomyelitis—Potwin	1
Scarlet fever	196
Smallpox:	
Nashville	10
Topeka	14
Scattering	27
Tetanus	1
Tuberculosis	22
Typhoid fever	5
Whooping cough	49

LOUISIANA

	Cases
Cerebrospinal meningitis	1
Diphtheria	19
Influenza	28
Malaria	5
Measles	104
Pneumonia	29
Scarlet fever	19
Smallpox	15
Tuberculosis	27
Typhoid fever	7
Whooping cough	6

MAINE

Chicken pox	67
Conjunctivitis	2
Diphtheria	3
German measles	65
Influenza	40
Measles	157
Mumps	15
Pneumonia	18
Scarlet fever	29
Tuberculosis	8
Typhoid fever	1
Vincent's angina	3
Whooping cough	47

MARYLAND [1]

Cerebrospinal meningitis	2
Chicken pox	158
Diphtheria	46
Dysentery	1
German measles	1
Influenza	82
Measles	29
Mumps	22
Pneumonia (broncho)	59
Pneumonia (lobar)	68
Scarlet fever	81
Septic sore throat	4
Streptococcus sore throat	1
Tetanus	1
Tuberculosis	56
Typhoid fever	6
Whooping cough	78

MASSACHUSETTS

Chicken pox	339
Conjunctivitis (suppurative)	7
Diphtheria	99
German measles	17
Influenza	17
Lethargic encephalitis	1
Measles	158
Mumps	237
Ophthalmia neonatorum	21
Pneumonia (lobar)	133
Scarlet fever	495
Septic sore throat	7
Trachoma	1
Tuberculosis (pulmonary)	90
Tuberculosis (other forms)	13
Typhoid fever	10
Whooping cough	132

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	98
Measles	149
Pneumonia	116
Scarlet fever	272
Smallpox	34
Tuberculosis	202
Typhoid fever	3
Whooping cough	90

MINNESOTA

Cerebrospinal meningitis	3
Chicken pox	293
Diphtheria	27
Dysentery	2
Influenza	2
Measles	222
Pneumonia	5
Poliomyelitis	1
Scarlet fever	269
Smallpox	2
Tuberculosis	25
Typhoid fever	5
Whooping cough	32

MISSISSIPPI

Cerebrospinal meningitis	1
Diphtheria	20
Scarlet fever	20
Smallpox	13
Typhoid fever	1

MISSOURI

(Exclusive of Kansas City)

Chicken pox	44
Diphtheria	62
Influenza	18
Measles	199
Mumps	14
Ophthalmia neonatorum	2
Pneumonia	1
Rabies (in animals)	5
Scarlet fever	138
Smallpox	6
Trachoma	1
Typhoid fever	2
Whooping cough	22

MONTANA

Chicken pox	13
Diphtheria	1
Measles	63
Mumps	17
Scarlet fever	107
Septic sore throat	1
Smallpox	3
Tuberculosis	1
Typhoid fever	1
Whooping cough	2

NEBRASKA

Chicken pox	47
Diphtheria	6
German measles	7

NEBRASKA—continued

	Cases
Measles	127
Mumps	46
Pneumonia	3
Scarlet fever	54
Smallpox	18
Typhoid fever	1
Whooping cough	5

NEW JERSEY

	Cases
Cerebrospinal meningitis	2
Chicken pox	328
Diphtheria	119
Influenza	44
Malaria	1
Measles	67
Pneumonia	175
Scarlet fever	310
Smallpox	2
Typhoid fever	8
Whooping cough	183

NEW MEXICO

	Cases
Chicken pox	23
Conjunctivitis	3
Diphtheria	6
German measles	3
Influenza	16
Measles	17
Mumps	13
Pneumonia	12
Puerperal septicemia	1
Scarlet fever	28
Tuberculosis	11
Typhoid fever	2
Whooping cough	6

NEW YORK

(Exclusive of New York City)

	Cases
Chicken pox	463
Diphtheria	107
Dysentery	1
German measles	85
Measles	782
Mumps	286
Pneumonia	277
Poliomyelitis	2
Scarlet fever	330
Septic sore throat	7
Smallpox	13
Typhoid fever	12
Vincent's angina	10
Whooping cough	190

NORTH CAROLINA

	Cases
Chicken pox	159
Diphtheria	34
German measles	5
Measles	174
Scarlet fever	75
Smallpox	37
Typhoid fever	6
Whooping cough	434

[2] Deaths.

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Tulsa County	1
Chicken pox	35
Diphtheria	38
Influenza	103
Measles	37
Pneumonia	103
Poliomyelitis—Ottawa County	1
Scarlet fever	48
Smallpox	22
Typhoid fever	6
Whooping cough	8

OREGON

	Cases
Cerebrospinal meningitis	2
Chicken pox	38
Diphtheria	14
Influenza	43
Measles	34
Mumps	5
Pneumonia [2]	12
Scarlet fever	66
Septic sore throat	2
Smallpox	22
Tuberculosis [2]	3
Typhoid fever	11
Whooping cough	13

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Somerset County	1
Chicken pox	963
Diphtheria	229
German measles	30
Impetigo contagiosa	19
Measles	812
Mumps	287
Ophthalmia neonatorum—Philadelphia	4
Pneumonia	98
Poliomyelitis—Madison tonwnship [3]	1
Scabies	5
Scarlet fever	561
Tetanus—Philadelphia	4
Tuberculosis	75
Typhoid fever	19
Whooping cough	313

RHODE ISLAND

	Cases
Chicken pox	4
Diphtheria	12
Measles	2
Mumps	2
Pneumonia	1
Poliomyelitis	1
Scarlet fever	15
Septic sore throat	2
Tuberculosis	5
Whooping cough	9

SOUTH CAROLINA

	Cases
Chicken pox	82
Dengue	2
Diphtheria	21

[3] County not specified.

SOUTH CAROLINA—continued

	Cases
Hookworm disease	27
Influenza	1,005
Malaria	110
Measles	32
Pellagra	24
Poliomyelitis	2
Scarlet fever	15
Smallpox	10
Tuberculosis	33
Typhoid fever	4
Whooping cough	65

SOUTH DAKOTA

Chicken pox	39
Diphtheria	4
Measles	107
Mumps	1
Pneumonia	14
Scarlet fever	99
Smallpox	4
Tuberculosis	1
Typhoid fever	2
Whooping cough	7

TENNESSEE

Cerebrospinal meningitis:	
Morgan County	1
Nashville	1
Chicken pox	93
Diphtheria	22
Influenza	69
Malaria	6
Measles	100
Mumps	6
Paratyphoid fever	3
Pellagra	2
Pneumonia	47
Poliomyelitis—McMinn County	1
Rabies	1
Scarlet fever	66
Smallpox	9
Tuberculosis	40
Typhoid fever	21
Whooping cough	62

TEXAS

Cerebrospinal meningitis	1
Chicken pox	141
Dengue	3
Diphtheria	73
Dysentery	2
Influenza	59
Leprosy	1
Measles	21
Mumps	18
Pellagra	1
Pneumonia	12
Rabies (human)	2
Scarlet fever	43
Smallpox	43
Trachoma	1
Tuberculosis	51
Typhoid fever	6
Whooping cough	12

UTAH

	Cases
Cerebrospinal meningitis—Salt Lake City	2
Chicken pox	69
Diphtheria	13
Influenza	2
Measles	595
Mumps	28
Pneumonia	3
Scarlet fever	29
Smallpox	5
Whooping cough	4

VERMONT

Chicken pox	16
Measles	84
Mumps	24
Scarlet fever	12
Whooping cough	24

WASHINGTON

Cerebrospinal meningitis	2
Chicken pox	71
Diphtheria	19
German measles	29
Measles	224
Mumps	55
Poliomyelitis	1
Scarlet fever	97
Smallpox	33
Tuberculosis	24
Typhoid fever	8
Whooping cough	9

WEST VIRGINIA

Cerebrospinal meningitis—Monroe County	1
Chicken pox	85
Diphtheria	27
Influenza	52
Measles	77
Scarlet fever	58
Smallpox	10
Tuberculosis	18
Typhoid fever	29
Whooping cough	87

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	3
Chicken pox	92
Diphtheria	32
German measles	3
Lethargic encephalitis	1
Measles	84
Mumps	37
Pneumonia	21
Scarlet fever	39
Tuberculosis	9
Typhoid fever	1
Whooping cough	48
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	326
Diphtheria	13

WISCONSIN—continued

	Cases
Scattering—Continued.	
German measles	20
Influenza	60
Measles	612
Mumps	183
Pneumonia	17
Scarlet fever	159
Tuberculosis	9
Typhoid fever	5
Whooping cough	120

WYOMING

	Cases
Cerebrospinal meningitis—Sheridan County	1
Chicken pox	8
Diphtheria	5
German measles	1
Influenza	1
Measles	177
Mumps	1
Scarlet fever	19
Tularemia—Sweetwater County	3
Whooping cough	11

Reports for Week Ended January 15, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	70
Diphtheria	20
Influenza	10
Pneumonia	53
Scarlet fever	32
Tuberculosis	18
Whooping cough	20

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	13
Diphtheria	4
Measles	130
Mumps	1
Pneumonia	9
Scarlet fever	88
Smallpox	11
Tuberculosis	3
Whooping cough	3

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1926										
Colorado		98	6		78		2	411	84	45
Pennsylvania	2	924		4	2,436	1	8		2	220
December, 1926										
District of Columbia	0	106	3		5	4	0	70	0	8
Indiana	1	320	176		225		1	675	553	31
Iowa	2	133			218		0	280	54	5
Louisiana	2	104	56	38	122	12	2	92	11	42
Maine	0	12	21		452		0	168	0	11
Maryland	2	244	139		128	1	1	291	0	65
Minnesota	4	228	2		642		3	1,131	22	19
New Jersey	4	530	94		155		3	783	0	31
New York	24	1,295		3	3,920		22	2,019	60	154
Vermont		8			490		0	60	0	3
West Virginia		159	185		302		1	243	32	175
Wisconsin	10	189	156		2,249		0	498	38	14

November, 1926

	Cases
Anthrax:	
Pennsylvania	2
Chicken pox:	
Colorado	206
Pennsylvania	3,093
German measles:	
Colorado	3
Pennsylvania	39
Hookworm disease:	
Colorado	2
Impetigo contagiosa:	
Colorado	55
Pennsylvania	59
Lethargic encephalitis:	
Pennsylvania	4
Mumps:	
Colorado	15
Pennsylvania	243
Ophthalmia neonatorum:	
Pennsylvania	12
Rabies in man:	
Pennsylvania	1
Scabies:	
Pennsylvania	40
Septic sore throat:	
Colorado	1
Tetanus:	
Pennsylvania	1
Trachoma:	
Colorado	1
Pennsylvania	1
Vincent's angina.	
Colorado	6
Whooping cough:	
Colorado	35
Pennsylvania	1,240

December, 1926

	Cases
Anthrax:	
New Jersey	2
New York	4
Chicken pox:	
District of Columbia	236
Indiana	690
Iowa	276
Louisiana	37
Maine	311
Maryland	645
Minnesota	1,260
New Jersey	1,069
New York	3,157
Vermont	216
West Virginia	456
Wisconsin	1,391
Dysentery:	
Louisiana	1
Maryland	2
Minnesota	2
New Jersey	3
New York	7
German measles:	
Iowa	1
Maine	8
Maryland	2
New Jersey	85
New York	474
German measles—Continued.	
Vermont	6
West Virginia	12
Wisconsin	65
Hookworm disease:	
Louisiana	8
Lead poisoning:	
New Jersey	5
Lethargic encephalitis:	
Louisiana	2
Maryland	2
Minnesota	3
New York	25
Wisconsin	2
Mumps:	
Iowa	40
Louisiana	7
Maine	37
Maryland	83
New York	1,333
Vermont	91
Wisconsin	444
Ophthalmia neonatorum:	
Maryland	1
New Jersey	4
New York	3
Paratyphoid fever:	
New Jersey	2
New York	6
Puerperal fever:	
New York	82
Rabies in animals:	
Maryland	2
Scabies:	
Maryland	1
Septic sore throat:	
Maine	1
Maryland	12
New York	6
Tetanus:	
Maryland	1
New York	8
Trachoma:	
Wisconsin	1
Tularaemia:	
Maryland	1
Minnesota	2
Typhus fever:	
Maryland	1
New York	3
Vincent's angina:	
Maine	14
Maryland	3
New York	58
Whooping cough:	
District of Columbia	35
Indiana	346
Iowa	33
Louisiana	7
Maine	202
Maryland	344
Minnesota	75
New Jersey	731
New York	1,335
Vermont	244
West Virginia	258
Wisconsin	664

Number of Cases of Certain Communicable Diseases Reported for the Month of November, 1926, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	45	356	40	19	106	17	226	137	125
Arizona	8	14	55	26	66	0	108	6	10
Arkansas	55	39	15	23	64	3	41	64	145
California	1,092	728	2,824	712	1,079	83	747	64	312
Colorado	206	98	78	15	411	84	85	45	35
Connecticut	426	113	58	26	230	0	108	11	[illegible]
Delaware	12	8	1	1	78	0	[1] 11	1	12
Dist. of Columbia	88	149	9		45	0	84	9	18
Florida	13	206	18	2	44	35	63	22	25
Georgia	45	367	11	15	86	48	64	89	84
Idaho [2]									
Illinois	1,869	581	1,368	239	1,124	25	1,131	202	958
Indiana	473	406	140	1	617	327	183	86	367
Iowa	299	132	82	21	220	27	28	12	25
Kansas	562	134	395	53	404	35	150	35	228
Kentucky [3]									
Louisiana	14	180	52	2	87	14	[1] 143	57	13
Maine	375	13	368	9	161	0	28	6	164
Maryland	501	208	89	43	192	0	183	96	298
Massachusetts	1,232	418	161	599	1,191	0	508	44	442
Michigan	1,212	711	325	132	962	90	242	49	463
Minnesota	1,121	430	511		1,054	23	169	15	98
Mississippi	409	244	271	222	147	24	302	139	930
Missouri	393	296	175	26	512	6	163	83	258
Montana	162	9	570	17	410	24	33	5	14
Nebraska [3]									
Nevada [4]									
New Hampshire		33			55	0		0	
New Jersey	753	516	120		568		447	94	607
New Mexico [2]									
New York	2,616	1,178	2,657	911	1,213	76	1,386	206	1,352
North Carolina	316	708	40		460	135		85	1,074
North Dakota	146	26	423	11	226	32	8	3	23
Ohio	2,376	1,333	134	207	1,387	132	510	159	938
Oklahoma [5]	64	219	51	4	142	173	53	188	101
Oregon	168	71	66	47	304	80	52	18	27
Pennsylvania	3,093	924	2,436	243		2	354	220	1,240
Rhode Island	40	50	12	4	90	0	56	8	17
South Carolina	180	706	20		98	29	151	142	148
South Dakota	119	10	209	9	275	32	6	9	53
Tennessee	82	457	55	1	339	11	120	267	259
Texas [2]									
Utah [3]									
Vermont [2]									
Virginia	431	651	240		501	10	[1] 78	123	962
Washington	595	229	361	125	371	94	148	53	85
West Virginia	311	241	89		266	13	77	124	242
Wisconsin	1,503	301	1,837	461	606	0	158	32	910
Wyoming	115	5	92	17	88	0	2	7	55

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of November, 1926

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Small-pox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	0.22	1.74	0.20	0.09	0.52	0.08	1.10	0.67	0.61
Arizona	.23	.40	1.59	.75	1.91	0	3.12	.17	.29
Arkansas	.36	.25	.10	.15	.42	.02	.27	.42	.94
California	3.22	2.14	8.32	2.10	3.18	.24	2.20	.19	.92
Colorado	2.42	1.15	.92	.18	4.84	.99	1.00	.53	.41
Connecticut	3.33	.88	.45	.20	1.80	0	.84	.00	1.37
Delaware	.62	.41	.05	.05	4.01	0	[1] .57	.05	.62
District of Columbia	2.10	3.56	.22		1.08	0	2.01	.22	.43
Florida	.14	2.25	.20	.02	.48	.38	.69	.24	.27
Georgia	.18	1.45	.04	.06	.34	.19	.25	.35	.33
Idaho [2]									
Illinois	3.22	1.00	2.36	.41	1.94	.04	1.95	.35	1.65
Indiana	1.87	1.60	.55	0	2.43	1.29	.72	.34	1.45
Iowa	1.44	.64	.40	.10	1.06	.13	.13	.06	.12
Kansas	3.75	.89	2.64	.35	2.70	.23	1.00	.23	1.52
Kentucky [3]									
Louisiana	.09	1.16	.33	.01	.56	.09	[1] .92	.37	.03
Maine	5.81	.20	5.70	.14	2.49	0	.43	.09	2.54
Maryland	3.92	1.63	.70	.34	1.50	0	1.43	.75	2.33
Massachusetts	3.59	1.22	.47	1.74	3.47	0	1.48	.13	1.29
Michigan	3.47	2.04	.93	.38	2.76	.26	.69	.14	1.41
Minnesota	5.25	2.02	2.40		4.94	.11	.79	.07	.45
Mississippi	2.78	1.66	1.84	1.51	1.00	.16	2.05	.94	6.38
Missouri	1.37	1.04	.61	.09	1.79	.02	.57	.29	.90
Montana	2.97	.16	10.43	.31	7.51	.44	.60	.09	.26
Nebraska [3]									
Nevada [4]									
New Hampshire		.89			1.48	0		0	
New Jersey	2.57	1.76	.41		1.94		1.52	.32	2.07
New Mexico [2]									
New York	2.83	1.28	2.88	.99	1.31	.08	1.50	.22	1.46
North Carolina	1.38	3.08	.17		2.00	.59		.37	4.67
North Dakota	2.56	.46	7.42	.19	3.96	.56	.14	.05	.40
Ohio	4.50	2.52	.25	.39	2.63	.25	.97	.30	1.78
Oklahoma [5]	.38	1.31	.31	.02	.85	1.04	.32	1.13	.60
Oregon	2.38	1.01	.94	.67	4.31	1.14	.74	.26	.38
Pennsylvania	3.99	1.19	3.14	.31		0	.46	.28	1.60
Rhode Island	.75	.94	.23	.08	1.70	0	1.06	.15	.32
South Carolina	1.22	4.78	.14		.66	.20	1.02	.96	1.00
South Dakota	2.16	.18	3.78	.16	4.98	.58	.11	.16	.96
Tennessee	.41	2.28	.27	0	1.69	.05	.60	1.33	1.29
Texas [2]									
Utah [3]									
Vermont [2]									
Virginia	2.12	3.20	1.18		2.46	.05	[1] .38	.60	4.73
Washington	4.82	1.86	2.93	1.01	3.01	.76	1.20	.43	.69
West Virginia	2.33	1.80	.67		1.99	.10	.58	.93	1.81
Wisconsin	6.46	1.29	7.89	1.98	2.60	0	.63	.14	3.91
Wyoming	6.17	.27	4.93	.91	4.72	.32	.11	.38	2.95

[1] Pulmonary.
[2] Reports not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of December, 1926, to other State health departments by departments of health of certain States

Referred by—	Chicken pox	Diphtheria	Dysentery	Malaria	Scarlet fever	Small-pox	Tuberculosis	Typhoid fever
California						2	1	
Connecticut								1
Illinois	1			1		2	4	2
Minnesota			2		1	5	90	3
New York		1			4			1
Rhode Island							1	

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended January 8, 1927, 39 States reported 2,262 cases of diphtheria. For the week ended January 9, 1926, the same States reported 1,966 cases of this disease. Ninety-nine cities, situated in all parts of the country and having an aggregate population of more than 30,640,000, reported 1,175 cases of diphtheria for the week ended January 8, 1927. Last year for the corresponding week they reported 992 cases. The estimated expectancy for these cities was 1,177 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-five States reported 8,940 cases of measles for the week ended January 8, 1927, and 10,392 cases of this disease for the week ended January 9, 1926. Ninety-nine cities reported 2,266 cases of measles for the week this year and 6,693 cases last year.

Poliomyelitis.—The health officers of 39 States reported 17 cases of poliomyelitis for the week ended January 8, 1927. The same States reported 28 cases for the week ended January 9, 1926.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-nine States—this year, 5,286 cases; last year, 4,514 cases; 99 cities—this year, 1,883 cases; last year, 1,560 cases; estimated expectancy, 1,218 cases.

Smallpox.—For the week ended January 8, 1927, 39 States reported 786 cases of smallpox. Last year for the corresponding week they reported 609 cases. Ninety-nine cities reported smallpox for the week as follows: 1927, 133 cases; 1926, 191 cases; estimated expectancy, 95 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—Three hundred and twenty-three cases of typhoid fever were reported for the week ended January 8, 1927, by 39 States. For the corresponding week of 1926 the same States reported 322 cases of this disease. Ninety-nine cities reported 48 cases of typhoid fever for the week this year and 74 cases for the corresponding week last year. The estimated expectancy for these cities was 55 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 93 cities, with a population of more than 29,970,000, as follows: 1927, 1,235 deaths; 1926, 1,359 deaths.

City reports for week ended January 8, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	24	2	0	0	0	7	0	0
New Hampshire:									
Concord	22,546	0	0	0	0	0	49	0	0
Manchester	83,097	0	2	1	0	2	1	0	3
Vermont:									
Barre	10,008	8	0	0	0	0	20	0	1
Massachusetts:									
Boston	779,620	116	66	34	4	1	26	54	34
Fall River	128,993	3	5	2	1	1	1	6	6
Springfield	142,065	40	4	10	0	0	0	1	0
Worcester	190,757	52	6	4	0	0	2	18	14
Rhode Island:									
Pawtucket	69,760	12	1	1	0	0	0	0	5
Providence	267,918	0	11	9	0	1	0	0	4
Connecticut:									
Bridgeport	(1)	5	9	5	2	4	3	2	4
Hartford	160,197	5	8	2	0	0	1	1	2
New Haven	178,927	36	4	1	0	0	0	1	8
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	66	18	8	--------	0	3	3	26
New York	5,873,356	356	222	233	62	22	13	220	231
Rochester	316,786	15	12	10	--------	0	0	2	6
Syracuse	182,003	49	8	1	--------	0	11	5	16
New Jersey:									
Camden	128,612	5	5	20	0	0	0	0	3
Newark	452,513	37	21	10	11	3	3	48	18
Trenton	132,020	--------	7	--------	--------	--------	--------	--------	--------
Pennsylvania:									
Philadelphia	1,979,364	178	84	64	--------	4	5	44	72
Pittsburgh	631,563	54	23	17	--------	7	25	1	39
Reading	112,707	23	5	5	--------	0	2	2	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	35	12	11	1	4	1	35	27
Cleveland	936,485	159	36	85	4	2	2	6	29
Columbus	279,836	22	5	4	0	2	0	0	5
Indiana:									
Fort Wayne	97,846	8	4	3	0	0	30	0	2
Indianapolis	358,819	82	13	24	0	1	0	0	15
South Bend	80,091	9	1	1	0	0	20	0	5
Terre Haute	71,071	3	1	1	0	0	2	0	1
Illinois:									
Chicago	2,995,239	124	123	101	28	10	406	33	91
Peoria	81,564	20	2	3	0	0	55	12	6
Springfield	63,923	15	2	0	2	2	73	3	4
Michigan:									
Detroit	1,245,824	156	73	77	5	4	5	55	45
Flint	130,316	16	9	3	0	0	1	1	5
Grand Rapids	153,698	12	5	0	0	0	2	0	5

[1] No estimate made.

City reports for week ended January 8, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	23	2	0	0	0	22	28	0
Madison	46,385	69	0	0	0	0	5	0	0
Milwaukee	509,192	68	23	20	1	1	72	33	20
Racine	67,707	25	2	2	0	0	2	8	0
Superior	39,671	0	1	2	0	0	2	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	1	3	1	0	0	16	0	2
Minneapolis	425,435	191	21	28	0	0	4	1	15
St. Paul	246,001	43	18	3	0	2	7	1	9
Iowa:									
Davenport	52,469	3	1	0	0	--------	21	1	--------
Des Moines	141,441	0	4	8	0	--------	2	0	4
Sioux City	76,411	30	2	4	0	--------	6	0	--------
Waterloo	36,771	49	0	0	0	--------	6	1	--------
Missouri:									
Kansas City	367,481	54	11	9	3	0	38	5	15
St. Joseph	78,342	3	4	2	0	2	1	0	1
St. Louis	821,543	44	55	42	2	2	7	11	--------
North Dakota:									
Fargo	26,403	2	0	0	0	0	5	0	0
South Dakota:									
Aberdeen	15,036	14	1	0	0	--------	0	0	--------
Sioux Falls	30,127	9	1	1	0	--------	0	0	--------
Nebraska:									
Lincoln	60,941	14	2	0	0	0	1	0	1
Omaha	211,768	20	5	3	0	0	39	6	6
Kansas:									
Topeka	55,411	30	2	2	0	0	1	0	4
Wichita	88,367	24	4	1	0	1	1	1	4
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	4	3	1	0	0	0	0	8
Maryland:									
Baltimore	796,296	129	31	45	25	2	3	11	32
Cumberland	33,741	3	1	0	0	0	0	0	2
Frederick	12,035	0	0	0	0	0	0	0	3
District of Columbia:									
Washington	497,906	49	21	20	2	0	2	0	29
Virginia:									
Lynchburg	30,395	4	1	1	0	0	10	0	4
Norfolk	(1)	--------	3	--------	--------	--------	--------	--------	--------
Richmond	186,403	6	7	17	0	0	54	2	5
Roanoke	58,208	7	2	2	0	0	3	0	1
West Virginia:									
Charleston	49,019	6	1	2	0	0	0	0	2
Wheeling	56,208	8	2	1	0	0	0	0	0
North Carolina:									
Raleigh	30,371	7	0	1	0	0	2	0	4
Wilmington	37,061	6	0	3	0	0	0	3	2
Winston-Salem	69,031	23	0	3	0	2	0	2	4
South Carolina:									
Charleston	73,125	3	1	0	35	1	0	0	1
Columbia	41,225	2	0	0	0	--------	0	0	--------
Greenville	27,311	7	1	0	0	0	0	0	1
Georgia:									
Atlanta	(1)	6	4	22	21	2	33	4	16
Brunswick	16,809	8	0	0	6	0	0	7	1
Savannah	93,134	3	1	0	4	1	0	0	2
Florida:									
Miami	69,754	7	--------	6	1	0	3	1	3
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	8
Tampa	94,743	2	1	2	0	1	4	0	4

[1] No estimate made.

City reports for week ended January 8, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	4	0	0	0	0	2
Louisville	305,935	21	8	2	1	0	0	1	18
Tennessee:									
Memphis	174,533	15	6	4	0	2	0	0	7
Nashville	136,220	3	2	3	0	3	0	1	7
Alabama:									
Birmingham	205,670	25	3	12	15	3	18	0	6
Mobile	65,955	9	1	0	0	1	2	0	0
Montgomery	46,481	27	1	2	0	0	1	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	1	1	1	0	--------	0	3	1
Little Rock	74,216	0	1	0	0	0	0	0	8
Louisiana:									
New Orleans	414,493	1	14	11	5	6	43	0	17
Shreveport	57,857	10	2	2	0	0	0	10	4
Oklahoma:									
Oklahoma City	(1)	4	2	3	0	0	0	0	6
Texas:									
Dallas	194,450	9	9	27	0	1	1	0	5
Galveston	48,375	0	2	2	0	0	0	0	0
Houston	164,954	0	5	15	1	1	1	1	10
San Antonio	198,069	0	2	3	0	2	0	0	12
MOUNTAIN									
Montana:									
Billings	17,971	1	0	1	0	0	33	0	1
Great Falls	29,883	6	1	0	0	0	10	0	0
Helena	12,037	0	0	0	0	0	0	0	1
Missoula	12,668	3	1	1	1	1	0	14	1
Idaho:									
Boise	23,042	6	0	0	0	0	41	0	0
Colorado:									
Denver	280,911	34	10	9	--------	6	130	0	23
Pueblo	43,787	3	3	0	0	0	0	0	5
New Mexico:									
Albuquerque	21,000	8	1	0	0	0	5	2	3
Arizona:									
Phoenix	38,669	0	0	0	0	0	0	0	4
Utah:									
Salt Lake City	130,948	17	3	3	0	0	368	1	9
Nevada:									
Reno	12,665	1	0	0	0	0	1	0	1
PACIFIC									
Washington:									
Seattle	(1)	56	6	7	0	--------	6	43	--------
Spokane	108,897	13	4	0	0	--------	305	0	--------
Tacoma	104,455	28	3	5	0	0	1	0	7
Oregon:									
Portland	282,383	35	10	9	5	0	3	0	8
California:									
Los Angeles	(1)	84	40	58	17	2	89	13	37
Sacramento	72,260	5	2	5	0	1	65	13	8
San Francisco	557,530	15	20	13	3	0	115	6	9

[1] No estimate made.

City reports for week ended January 8, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	2	0	0	0	0	0	0	0	37	------
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	16
Manchester	2	2	0	0	0	3	0	0	0	0	28
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	4
Massachusetts:											
Boston	54	127	0	0	0	9	1	4	1	20	226
Fall River	3	3	0	0	0	1	0	0	0	12	------
Springfield	8	6	0	0	0	3	0	0	0	2	39
Worcester	12	20	0	0	0	2	0	0	0	6	57
Rhode Island:											
Pawtucket	1	1	0	0	0	1	0	0	0	1	22
Providence	8	17	0	0	0	1	0	0	0	8	82
Connecticut:											
Bridgeport	8	17	0	0	0	1	0	0	0	1	37
Hartford	8	10	0	0	0	0	0	0	0	1	26
New Haven	9	7	0	0	0	0	0	0	0	1	41
MIDDLE ATLANTIC											
New York:											
Buffalo	24	16	0	0	0	11	1	1	0	9	254
New York	194	360	0	0	0	[1] 95	12	7	0	51	1,513
Rochester	14	18	0	0	0	3	1	2	1	7	69
Syracuse	13	5	0	0	0	0	0	0	0	5	61
New Jersey:											
Camden	5	4	0	0	0	0	0	0	0	0	32
Newark	23	42	0	0	0	6	0	0	0	33	111
Trenton	4	------	0	------	------	------	0	------	------	------	------
Pennsylvania:											
Philadelphia	78	102	0	0	0	28	5	2	1	33	------
Pittsburgh	38	26	0	0	0	11	1	1	2	9	235
Reading	2	4	0	0	0	1	0	0	0	1	26
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	21	1	0	0	7	1	1	0	1	160
Cleveland	38	44	2	1	0	12	2	0	0	14	213
Columbus	11	8	1	0	0	6	0	0	0	7	70
Indiana:											
Fort Wayne	4	8	1	0	0	1	0	1	0	0	24
Indianapolis	10	16	10	39	0	5	0	0	0	26	104
South Bend	4	4	1	0	0	1	0	0	0	0	23
Terre Haute	3	9	0	2	0	0	0	1	0	0	11
Illinois:											
Chicago	133	132	1	0	0	46	5	2	0	58	865
Peoria	6	1	0	0	0	0	0	0	0	1	17
Springfield	2	2	0	0	0	0	0	0	0	1	28
Michigan:											
Detroit	91	100	3	0	0	29	2	2	1	47	357
Flint	8	21	1	2	0	1	0	1	0	1	35
Grand Rapids	11	13	1	4	0	1	1	0	1	5	33
Wisconsin:											
Kenosha	2	12	1	0	0	0	0	0	0	11	9
Madison	3	3	0	0	0	0	0	0	0	2	5
Milwaukee	30	33	2	0	0	7	1	0	0	54	112
Racine	6	6	0	0	0	0	0	0	0	1	------
Superior	2	3	2	0	0	2	0	0	0	0	5

[1] Pulmonary tuberculosis only.

City reports for week ended January 8, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	16	0	0	0	0	0	0	0	2	15
Minneapolis	49	70	12	0	0	3	1	1	1	1	115
St. Paul	28	32	12	4	0	6	1	0	0	10	71
Iowa:											
Davenport	2	3	1	0			0	0		0	
Des Moines	7	1	2	1		1	0	1		0	23
Sioux City	2	8	1	6			0	0		0	
Waterloo	2	0	1	0			0	0		0	
Missouri:											
Kansas City	14	21	1	6	0	3	0	0	0	3	102
St. Joseph	2	1	0	0	0	1	0	0	0	0	28
St. Louis	37	38	2	3	0	9	2	3	0	16	237
North Dakota:											
Fargo	2	11	1	0	0	0	0	0	0	3	10
South Dakota:											
Aberdeen	1	6	0	0			0	0		0	
Sioux Falls	2	1	1	0			0	0		0	
Nebraska:											
Lincoln	3	2	0	0	0	0	0	0	0	0	14
Omaha	5	15	7	0	0	6	0	0	0	1	70
Kansas											
Topeka	3	6	0	10	0	0	0	0	0	8	13
Wichita	4	9	0	0	0	2	0	0	0	4	
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	26	0	0	0	2	0	0	0	0	45
Maryland:											
Baltimore	30	22	0	0	0	18	3	0	0	102	267
Cumberland	1	1	0	0	0	0	0	0	0	0	10
Frederick	0	1	0	0	0	0	0	0	0	1	7
District of Columbia:											
Washington	24	28	0	0	0	7	2	0	0	10	165
Virginia:											
Lynchburg	0	4	0	0	0	1	0	0	0	1	8
Norfolk	2		0				0				
Richmond	5	7	0	0	0	6	1	0	0	2	61
Roanoke	1	2	0	1	0	1	0	0	0	1	11
West Virginia:											
Charleston	2	4	0	0	0	4	0	0	0	4	14
Wheeling	2	5	0	0	0	0	0	0	0	5	17
North Carolina:											
Raleigh	1	4	0	0	0	2	0	0	0	13	16
Wilmington	1	0	0	0	0	0	0	0	0	4	17
Winston-Salem	2	3	2	2	0	2	0	[illegible]	0	38	17
South Carolina:											
Charleston	0	1	0	0	0	1	1	1	0	0	23
Columbia	0	1	1	0			0	0		1	
Greenville	0	2	0	0	0	0	0	0	0	2	5
Georgia:											
Atlanta	3	7	1	10	0	6	0	0	1	19	93
Brunswick	0	2	0	1	0	0	0	0	0	0	3
Savannah	1	1	0	1	0	4	1	0	0	0	32
Florida:											
Miami		1		0	0	3		1	0	2	47
St. Petersburg	1		0		0	0	0		0		12
Tampa	0	5	0	0	0	1	0	0	0	0	37

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City reports for week ended January 8, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	3	0	0	0	0	0	0	0	0	21
Louisville	5	9	1	3	0	3	1	0	0	10	82
Tennessee:											
Memphis	6	23	1	1	0	1	1	3	1	15	62
Nashville	2	7	0	0	0	4	1	1	1	7	59
Alabama:											
Birmingham	4	3	3	3	0	4	1	0	0	2	81
Mobile	0	1	0	1	0	3	0	1	0	0	32
Montgomery	0	0	0	0	0	0	0	0	0	1	22
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	--------	1	0	0	--------	10	11
Little Rock	2	2	0	0	0	0	0	0	0	5	--------
Louisiana:											
New Orleans	5	5	0	2	0	13	2	6	1	3	153
Shreveport	1	2	1	0	0	6	0	0	1	0	28
Oklahoma:											
Oklahoma City	2	3	1	0	0	2	0	0	0	4	40
Texas:											
Dallas	4	15	0	3	0	6	0	0	0	3	56
Galveston	0	3	0	0	0	1	0	0	0	0	10
Houston	2	6	1	5	0	5	0	0	0	0	81
San Antonio	1	4	0	0	0	8	0	0	0	0	67
MOUNTAIN											
Montana:											
Billings	2	1	0	0	0	1	0	0	0	0	6
Great Falls	1	15	1	0	0	0	0	0	0	0	4
Helena	1	0	0	0	0	0	0	0	0	0	10
Missoula	0	11	0	0	0	1	0	0	0	1	5
Idaho:											
Boise	1	2	1	0	0	0	0	1	0	0	6
Colorado:											
Denver	10	60	3	0	0	7	0	0	0	1	104
Pueblo	2	1	0	0	0	0	0	0	0	0	13
New Mexico:											
Albuquerque	1	5	0	0	0	9	0	0	0	0	24
Arizona:											
Phoenix	0	1	0	0	0	8	0	0	0	0	29
Utah:											
Salt Lake City	4	7	2	0	0	0	0	0	0	1	34
Nevada:											
Reno	1	0	0	0	0	0	0	0	0	0	7
PACIFIC											
Washington:											
Seattle	10	23	3	9	--------	--------	1	2	--------	6	--------
Spokane	4	41	3	1	--------	--------	0	0	--------	3	--------
Tacoma	3	2	2	13	0	0	0	0	1	2	32
Oregon:											
Portland	7	12	7	3	0	3	1	2	0	0	69
California:											
Los Angeles	21	49	4	0	0	21	2	0	0	6	329
Sacramento	2	2	1	0	0	5	0	0	0	0	38
San Francisco	12	13	1	0	0	17	1	1	2	9	--------

City reports for week ended January 8, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Worcester	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	0	0	1	0	0	0	0	0
New York	7	3	5	6	0	0	1	3	0
New Jersey:									
Newark	0	0	1	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	4	0	0	0	0	0	0	0	0
Michigan:									
Detroit	1	2	0	0	0	0	0	1	0
Wisconsin:									
Milwaukee	3	0	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
St. Louis	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	0	0	0	1	1	0	0	0
Georgia:									
Atlanta [1]	0	0	0	0	2	0	0	0	0
Savannah	0	0	0	0	0	1	0	0	0
Florida:									
Tampa	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Mobile	0	0	1	1	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	1	0	0	0	0
Texas:									
Houston	0	1	0	1	0	0	0	0	0
San Antonio	0	1	0	0	0	0	0	0	0
MOUNTAIN									
Montana:									
Helena	0	1	0	0	0	0	0	0	0
Colorado:									
Pueblo	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	2	0	0	0	0	0	0	0	0
Spokane	1	0	0	0	0	0	0	0	0
Tacoma	2	0	0	0	0	0	0	0	0
Oregon:									
Portland	2	0	0	0	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	0	0	0	1	0

[1] Typhus fever: 1 case at Atlanta, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 8, 1927, compared with those for a like period ended January 9, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 5, 1926, to January 8, 1927.—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
101 cities	159	[2] 201	[3] 158	189	122	[4] 163	132	[5] 177	170	[6] 200
New England	103	163	132	161	89	161	141	158	139	158
Middle Atlantic	138	160	147	167	108	139	126	171	182	[7] 184
East North Central	158	223	154	216	150	[8] 184	132	193	151	223
West North Central	239	193	178	129	184	113	160	[5] 167	288	189
South Atlantic	192	239	192	218	94	[9] 216	129	175	177	[9] 232
East South Central	121	[2] 275	89	145	74	150	110	187	52	138
West South Central	176	267	[3] 241	258	128	168	150	224	189	256
Mountain	166	246	176	164	166	137	111	137	182	126
Pacific	191	240	177	253	88	226	127	156	96	230

MEASLES CASE RATES

	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
101 cities	427	[2] 199	[3] 515	190	416	[4] 207	613	[5] 222	1,147	[6] 386
New England	1,953	165	2,082	229	1,579	168	2,406	184	3,087	253
Middle Atlantic	451	23	518	24	382	22	558	22	997	[7] 31
East North Central	293	218	479	242	537	[8] 241	753	200	1,763	416
West North Central	25	129	35	109	70	77	61	[5] 60	151	200
South Atlantic	539	54	570	90	240	[9] 62	470	180	1,278	[9] 214
East South Central	21	[2] 83	79	21	116	31	105	78	52	107
West South Central	4	146	[3] 0	82	0	103	0	13	0	189
Mountain	37	3,214	28	2,349	28	2,777	83	3,541	55	5,241
Pacific	52	617	77	607	36	884	47	701	64	1,521

SCARLET FEVER CASE RATES

	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
101 cities	223	[2] 238	[3] 232	279	203	[4] 253	225	[5] 267	269	[6] 320
New England	187	340	192	388	240	248	304	357	295	490
Middle Atlantic	172	177	189	214	146	212	168	234	210	[7] 288
East North Central	288	236	286	242	234	[8] 254	249	245	334	283
West North Central	476	431	454	413	438	371	509	[5] 387	583	451
South Atlantic	152	175	154	201	157	[9] 172	140	240	156	[9] 243
East South Central	110	[2] 149	116	249	168	244	100	176	119	234
West South Central	141	142	[3] 88	237	97	125	119	151	112	155
Mountain	157	801	277	1,111	213	974	250	892	237	953
Pacific	185	232	243	386	182	305	210	253	241	340

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926, and 1927, respectively.
[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Terre Haute, Ind., and Norfolk, Va., not included.
[5] Topeka, Kans., not included.
[6] Trenton, N. J., and Norfolk, Va., not included.
[7] Trenton, N. J., not included.
[8] Terre Haute, Ind., not included.
[9] Norfolk, Va., not included.

Summary of weekly reports from cities, December 5, 1926, to January 8, 1927.—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26—Continued

SMALLPOX CASE RATES

	Week ended—									
	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
101 cities	21	[2]11	[3]20	16	18	[4]14	24	[5]12	33	[6]23
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	1	1	1	0	0	1	1	0	[7]0
East North Central	33	7	26	11	25	[8]16	23	7	48	32
West North Central	18	38	37	46	20	28	18	[5]19	63	58
South Atlantic	8	19	12	26	10	[9]30	25	41	43	[9]29
East South Central	5	[2]22	11	78	0	36	74	47	47	41
West South Central	9	9	[3]23	43	9	26	22	22	52	42
Mountain	102	18	37	0	9	18	37	9	36	0
Pacific	121	43	113	40	130	43	152	22	110	60

TYPHOID FEVER CASE RATES

	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
101 cities	20	[2]13	[3]16	12	9	[4]11	10	[5]12	13	[6]8
New England	22	2	10	31	10	40	7	24	31	9
Middle Atlantic	25	18	17	8	11	5	7	7	14	[7]6
East North Central	12	3	13	5	7	[8]4	6	5	11	5
West North Central	12	4	14	10	4	10	6	[5]4	2	8
South Atlantic	23	24	17	19	12	[9]16	12	34	9	[9]8
East South Central	26	[2]44	26	21	5	16	32	21	16	25
West South Central	31	13	[3]28	22	9	17	48	17	21	25
Mountain	18	9	9	9	18	0	9	27	9	9
Pacific	14	16	17	24	8	22	8	16	11	8

INFLUENZA DEATH RATES

	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
95 cities	13	[2]17	[3]14	14	12	[4]15	15	[5]17	21	[6]20
New England	10	9	14	7	12	7	12	21	9	16
Middle Atlantic	12	12	8	13	9	14	10	21	18	[7]18
East North Central	11	14	17	12	8	[8]10	8	15	12	17
West North Central	6	15	4	15	6	11	15	[5]6	8	15
South Atlantic	8	34	10	26	17	[9]34	19	17	15	[9]18
East South Central	47	[2]44	53	5	32	36	32	26	83	46
West South Central	44	43	[3]36	43	48	19	44	14	44	43
Mountain	18	36	0	9	28	27	28	46	46	63
Pacific	4	11	18	7	15	4	40	0	57	10

PNEUMONIA DEATH RATES

	Dec. 12, 1925	Dec. 11, 1926	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927
95 cities	130	[2]129	[3]149	138	136	[4]137	186	[5]163	220	[6]195
New England	132	135	158	149	165	151	213	173	245	181
Middle Atlantic	132	139	148	147	145	166	188	179	229	[7]207
East North Central	116	103	132	119	101	[8]111	145	134	177	170
West North Central	84	118	133	120	99	91	127	[5]117	141	116
South Atlantic	173	154	200	126	205	[9]152	267	186	291	[9]237
East South Central	184	[2]171	215	130	142	109	263	192	331	204
West South Central	208	151	[3]184	184	174	90	276	151	313	241
Mountain	176	109	120	273	203	164	268	200	128	369
Pacific	76	114	98	124	87	149	138	199	219	210

[2] Covington, Ky., not included.
[3] Shreveport, La., not included.
[4] Terre Haute, Ind., and Norfolk, Va., not included.
[5] Topeka, Kans., not included.
[6] Trenton, N. J., and Norfolk, Va., not included.
[7] Trenton, N. J., not included.
[8] Terre Haute, Ind., not included.
[9] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended December 25, 1926.—The following report for the week ended December 25, 1926, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:							Siam: Bangkok	0	0	4	1	1	1
Bombay	----	0	----	0	7	5	French Indo-China.						
Madras	----	0	----	0	11	0	Turane	0	0	13	8	0	0
Calcutta	----	0	----	62	93	72	Haiphong	0	0	----	200	0	0
Rangoon	----	3	----	1	1	0	U. S. S. R.: Vladivostok	0	0	0	0	0	0
Negapatam	----	0	----	1	0	0	Mauritius: Port Louis	6	4	0	0	0	0
Karachi	----	0	----	0	1	1	Madagascar						
Straits Settlements:							Tamatave	1	0	0	0	0	0
Singapore	0	0	3	3	5	0	Majunga	1	0	0	0	0	0
Dutch East Indies:													
Surabaya	2	2	0	0	0	0							
Macassar	1	1	0	0	0	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Chittagong, Cochin, Vizagapatam Tuticorin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham

Straits Settlements.—Penang.

Dutch East Indies.—Samarang, Batavia, Sabang, Banjermasin, Palembang, Belawan-Deli, Padang, Cheribon, Pontianak.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Saigon and Cholon.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Hongkong.

Macao.

Formosa.—Keelung.

Korea.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.

Kwan-tung.—Port Arthur, Dairen.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from:

Dutch East Indies.—Menado, Samarinda, Tarakan, Balikpapan.
Ceylon.—Colombo.

Japan.—Yokohama, Osaka, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

Belated information

Week ended December 4—
India.—Negapatam, 3 deaths from cholera.
Japan.—Province of Tayama, 2 smallpox cases; Province of Fukuoko, 2 smallpox cases.
Week ended December 11—
French India.—District of Karikal, smallpox, 3 cases, 3 deaths; district of Pondicherry, 1 smallpox case.
The following information has been received for the 26th to 29th of December, 1926:
Singapore.—Smallpox, 1 case.
Johore Bahru (State of Johore).—Cholera, 3 cases, 1 death.

CANADA

Communicable diseases—Weeks ended January 1 and January 8, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the weeks ended January 1 and 8, 1927, as follows:

WEEK ENDED JANUARY 1, 1927

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1	3				4
Influenza	16							16
Lethargic encephalitis					1			1
Smallpox				28	3	1	6	38
Typhoid fever	3		4	9				16

WEEK ENDED JANUARY 8, 1927

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	20							20
Smallpox				10	1		6	17
Typhoid fever			9	10		1		20

CANARY ISLANDS

Plague—Atarfe—December 20, 1926.—A case of plague was reported, December 20, 1926, in the Canary Islands. The case occurred at Atarfe, a town in the vicinity of Las Palmas, and terminated fatally.

ECUADOR

Plague—Plague-infected rats—Smallpox—Guayaquil—December 1–15, 1926.—During the period December 1 to 15, 1926, six cases of plague with two deaths were reported at Guayaquil, Ecuador. During the same period, 13,076 rats were reported taken and 54 found plague infected.

One case of smallpox was reported at Guayaquil during the period under report.

INDIA

Cholera—Smallpox—Calcutta.—Information received under date of January 14, 1927, shows cholera and smallpox present at Calcutta, India.

PANAMA CANAL

Communicable diseases—September–October, 1926.—Communicable diseases have been reported in the Canal Zone, and at Colon and Panama, during the months of September and October, 1926, as follows:

SEPTEMBER, 1926

Disease	Canal Zone		Colon		Panama		Infected in other localities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox			1						1	
Diphtheria			1		20		1	1	22	1
Dysentery	1		1		3	1	1		6	1
Hookworm			9		35		65		109	
Leprosy							1		1	
Malaria	94		2	1	4	1	18		118	2
Measles	4		2		11		1		18	
Meningitis							1	1	1	
Pneumonia		2		6		27		10		45
Tuberculosis		2		1		16		4		23
Whooping cough			2		3				5	

OCTOBER, 1926

Disease	Canal Zone Cases	Canal Zone Deaths	Colon Cases	Colon Deaths	Panama Cases	Panama Deaths	Infected in other localities Cases	Infected in other localities Deaths	Total Cases	Total Deaths
Chicken pox					4				4	
Diphtheria					5				5	
Dysentery	1				4	1			5	1
Hookworm			7		52		47		106	
Malaria	73	1	3		7		24		107	1
Measles	3		8		20				31	
Meningitis	1	1							1	1
Pneumonia		3		5		22		8		38
Relapsing fever			1				1		2	
Tuberculosis		1		4		21		4		30
Typhoid fever							1	1	1	1
Whooping cough					2	1			2	1

PERU

Mortality from communicable diseases—Arequipa—December, 1926.—During the month of December, 1926, mortality from communicable diseases was reported at Arequipa, Peru, as follows: Gastroenteritis, deaths, 7; influenza, 2; tuberculosis, 20. Population, estimated, 43,000.

Mortality from all causes—Prevailing diseases.—During the same period, 73 deaths from all causes were reported at Arequipa. Prevailing diseases reported were: Bronchitis, bronchopneumonia, and pneumonia; tuberculosis, and a few cases of typhoid fever, typhus fever, and smallpox.

Mortality from communicable diseases—Callao—Lima—October, 1926.—Mortality from communicable diseases was reported at Callao and Lima, Peru, for the month of October, 1926, as follows:

Disease	Deaths		Disease	Deaths	
	Callao	Lima		Callao	Lima
Diphtheria	1	2	Puerperal fever		2
Gastroenteritis	5	32	Tuberculosis	31	99
Influenza	1	15	Typhoid fever		4
Malaria	3	4	Whooping cough		2

Population: Callao, estimated, 60,000; Lima, estimated, 240,000.

Plague—November, 1926.—During the month of November, 1926, 24 cases of plague with 4 deaths were reported in Peru, occurring in three departments, viz, *Ica*, *Lambayeque*, and *Lima*. Plague was stated to be present during the same period, with an unreported number of cases, in the department of Cajamarca, and two districts of the department of Lima. In Lima City five cases with one death were reported.

PORTUGUESE WEST AFRICA

Plague—Benguela, Angola—October 16–31, 1926.—During the period October 16 to 31, 1926, eight cases of plague with four deaths were reported at Benguela, Angola, Portuguese West Africa.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended January 28, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Oct. 31–Nov. 13, 1927: Cases, 2,947; deaths, 1,758.
Calcutta	Nov. 28–Dec. 4	40	31	
Rangoon	do	2	2	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Canary Islands:				
Atarfe	Dec 20	1	1	Vicinity of Las Palmas.
Ecuador.				
Guayaquil	Dec 1–15	6	2	Rats taken: 13,076; found infected, 54.
India				Oct 31–Nov. 13, 1926: Cases, 2,096, deaths, 1,740,
Rangoon	Nov. 28–Dec 4	1	1	
Java:				
Batavia	do	10	9	
Peru	Nov. 1–30			Cases, 24, deaths, 4.
Departments—				
Cajamarca	do			Present. Cases not reported.
Ica—				
Chincha	do	1		

[1] [illegible] medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended January 28, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru—Continued.				
Departments—Continued				
Lambayeque	Nov. 1-30			Present in Lambayeque Province.
Chiclayo	do	3		
Lima	do			Cases, 20; deaths, 4. Present in Cajatambo and Chancay provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Syria:				
Beirut	Dec. 1-10	1		

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Rio de Janeiro	Dec. 5-25	60	23	Jan. 1-Dec. 25, 1926: Cases, 4,038; deaths, 2,173.
Canada	Dec. 26-Jan. 1	38		
Do	Jan. 2-8	17		
Alberta	Dec. 26-Jan. 1	6		
Do	do	6		
Calgary	Jan. 2-8	3		
Manitoba	Dec. 26-Jan. 1	3		
Do	Jan. 2-8	1		
Winnipeg	Jan. 2-15	2		
Ontario	Dec. 26-Jan. 1	28		
Do	Jan. 2-8	10		
Ottawa	Jan. 9-15	1		
Toronto	Jan. 2-8	10	1	
Saskatchewan	Dec. 28-Jan. 1	1		
China:				
Manchuria—				
Mukden	Dec. 5-11	1		
France:				
Paris	Dec. 1-10	2	2	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
India	Oct. 31-Nov. 13	2,102	452	
Calcutta	Nov. 28-Dec. 4	45	24	
Rangoon	do	1		
Iraq:				
Baghdad	Nov. 7-20	2	1	
Japan:				
Yokohama	Nov. 27-Dec. 3	2		
Mexico:				
Mexico City	Dec. 19-25	1		Including municipalities in Federal District.
Do	Dec. 26-Jan. 8	1		Do.
Peru:				
Arequipa	Dec. 1-31			Present.
Portugal:				
Lisbon	Dec. 19-25	3	1	
Portuguese West Africa:				
Angola				Oct. 1-15, 1926: Present in Congo district.
Straits Settlements:				
Singapore	Oct. 31-Nov. 20	2		
Union of South Africa:				
Natal—				
Durban	Nov. 20			Last case reported.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Chile:				
Valparaiso	Dec. 12-18	3		
Palestine:				
Beisan	Dec. 21-27	1		
Haifa	Nov. 30-Dec. 13	3		
Jaffa	Nov. 30-Dec. 20	4		
Nazareth	do	5		
Peru:				
Arequipa	Dec. 1-31			Present.
Union of South Africa:				
Cape Province	Nov. 28-Dec. 4			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 21, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 11-20			Present.
Tsingtao	Nov. 14-Dec. 11			Do.
French Settlements in India	Aug. 29-Oct. 2	93	61	
India	Oct. 10-30			Cases, 1,116, deaths, 2,412.
Calcutta	Oct. 31-Nov. 20	84	69	
Rangoon	Nov. 21-27	1	1	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925. Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Siam	do			Case, 1.
Do	Apr. 1-Nov. 20			Cases, 7,714; deaths, 5,080.
Bangkok	Oct. 31-Nov. 20	6	1	
Straits Settlements	July 25-Aug. 21		11	

PLAGUE

Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Ceylon:				
Colombo	Nov. 14-Dec. 4	2	1	Two plague rodents.
China:				
Nanking	Oct. 31-Nov. 20			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-30	12	3	Rats taken, 21,887; found infected, 77.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Kafr el Sheikh	Dec. 3-9	2		
Tanta District	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piraeus.
Athens	do		3	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-30			Cases, 4,980, deaths, 2,920.
Bombay	Nov. 21-27	1	1	
Madras	Oct. 17-23	83	45	
Do	Nov. 1-7	75	32	
Rangoon	Nov. 14-27	6	5	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 14.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Casse, 22; deaths, 15.
Java:				
Batavia	Nov. 7-27	17	17	Province.
Surabaya	Oct. 21-Nov. 6	8	8	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	do	2	2	
Maevatanana	do	10	10	
Moramanga	do	21	15	
Tamatave	do	3	1	
Tananarive	do			Cases, 85; deaths, 79.
Tananarive Town	do	13	13	
Nigeria	Aug. 1-31	187	164	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Belem.

[1] From medical officers of the Public Health Service, American consuls, and other sources. For reports received from June 26 to Dec. 31, 1926, see Public Health Reports for Dec. 31, 1926. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 21, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Syria:				
Beirut	Nov. 11-20	1		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-20	1		Native. On farm.
Orange Free State—				
Hoopstad District	Nov. 7-13	1	1	Do.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	160		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Nov. 20	3	3	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 4	56	2	
Rio de Janeiro	Nov. 14-27	80	41	
Sao Paulo	Aug. 23-Oct. 3	10	8	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Canada	Dec. 5-25			Cases, 117.
Alberta	Jan. 2-8	26		
Calgary	Nov. 28-Dec. 25	12		
Manitoba	Dec. 5-25	6		
Winnipeg	Dec. 19-25	1		
Ontario	Dec. 5-18	68		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Toronto	Dec. 14-25	14		
Do	Jan. 1-7	5		
Saskatchewan	Dec. 5-25	17		
China:				
Chungking	Nov. 7-27			Present.
Foochow	Nov. 7-13			Do.
Hankow	Nov. 6-30			Do.
Swatow	Nov. 21-27			Do.
Chosen	Aug. 1-31	33	10	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-30	66		
French Settlements in India	Aug. 29-Sept. 25	40	40	
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Dec. 11			Cases, 1,300.
Newcastle-on-Tyne	Dec. 5-11	2		
Sheffield	Nov. 28-Dec. 18	22		
Greece	Nov. 1-30	20		
India	Oct. 10-30			Cases, 1,865; deaths, 536.
Bombay	Nov. 7-Dec. 4	11	8	
Calcutta	Oct. 31-Nov. 20	16	14	
Madras	Nov. 21-Dec. 11	7	1	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925 Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct 31-Nov. 6	1	1	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Sept. 11	4		
Jamaica	Nov 26-Dec. 25	34		Reported as alastrim.
Japan.				
Kobe	Nov. 14-20	1		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 13	8	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 21, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico:				
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 21-Dec. 22	5		Including municipalities in Federal District.
San Luis Potosi	Nov. 12-Dec. 18		3	
Torreon	Nov. 28-Dec. 25		7	
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Dec. 18	37	3	
Rumania	Jan 1-Sept. 30	7	1	
Siam	Apr. 1-Nov. 27			Cases, 691; deaths, 258.
Bangkok	Oct. 31-Nov. 27	13	3	
Tunisia	Oct. 1-20	1		
Union of South Africa:				
Cape Province—				
Stutterheim District	Nov. 21-27			Outbreaks.
Natal—				
Durban District	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak, Oct. 14, 1926: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks
Bothaville District	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	12		
Bulgaria	July 1-Sept. 30	221	24	
Chile:				
Valparaiso	Nov. 21-Dec. 4	2		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-31	5		
Seoul	Nov. 1-30	1		
Greece	do			Cases, 12.
Athens	do	4		
Italy	Aug. 29-Sept. 11	1		
Lithuania	Sept. 1-30	12	2	
Mexico:				
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Palestine:				
Haifa	Nov. 23-29	2		
Jaffa	do	2		
Nazareth	Nov. 16-29	2		
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
Rumania	Aug. 1-Sept. 30	72	3	
Russia	Aug. 1-31	1,156		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-20			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-30	9		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Aug. 1-31	7	2	
Senegal:				
Diourbel	Dec. 6	1	1	
Rufisque	Nov. 27	1	1	In European.
Upper Volta:				
Gaoua district	Oct. 25	2		

X

TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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BY THE UNITED STATES PUBLIC HEALTH SERVICE

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FEBRUARY 4 - 1927

SPECIAL ARTICLES

Data Regarding the Influenza Outbreak in Europe

Some Special Features of the Work of the Public Health Service

Reports of the Health Section, League of Nations

WASHINGTON
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

VOL. 42 FEBRUARY 4, 1927 No. 5

THE INFLUENZA OUTBREAK IN EUROPE

A special bulletin giving information concerning the prevalence of influenza in Europe has been issued under date of January 11, 1927, by the health section of the secretariat of the League of Nations.

The following reports are taken from the bulletin:

Germany.—The Reichsgesundheitsamt reported on January 8 that there was no influenza epidemic in Germany but an increase of affections of the upper respiratory tract. Hospital admissions in Berlin are increasing since the beginning of January.

The General Sickness Insurance Institute (Allgemeine Ortskrankenkasse) at Berlin has received the following number of reports of influenza cases among its members (about 500,000):

Dec. 27	158	Jan. 1-2	
Dec. 28	286	Jan. 3	[1] 338
Dec. 29	329	Jan. 4	[1] 545
Dec. 30	337	Jan. 5	[1] 688
Dec. 31	292	Jan. 6	682

Belgium.—The health administration reports (January 7) numerous cases of simple influenza of benign type and short duration. Fatal cases are rare and due particularly to complications of respiratory system.

Denmark.—The following information has been received from the health administration (January 7): Influenza broke out during the third week of December in the southern part of Jutland, affecting particularly the towns. It spread in leaps, affecting the island of Fyen during the last week of December, leaving the northern part of Jutland untouched. A few cases are occurring at Copenhagen and elsewhere in the island of Sealand. The cases are generally mild and only few deaths occur. The most prevalent clinical characters are: Tracheitis, conjunctivitis, epistaxis, irritation of throat, headache, rachialgia, abdominal pains, colitis. Fever high but of short duration, complications rare, very infectious, incubation period two days. Instruction has been given to health officers as to isolation of infected and suspicious persons; warnings have been issued against gatherings. Weekly reports and immediate notification of first case is being requested from local health officers.

[1] Including cases occurring on Jan. 1 and 2.

Spain.—The Spanish Health Administration cables on January 8: While awaiting reply to urgent telegraphic request for information sent to all Provinces of Spain, which it is hoped they will submit in a couple of days, I may say that influenza epidemic appeared in the beginning of December in the towns bordering on the French frontier, especially at Barcelona and San Sebastian, becoming rather widespread, remaining, however, of benign character up to now. The first cases appeared in Madrid 20 days ago, extending rapidly, equally with benign character. General mortality and mortality from diseases of the respiratory system have been about the same as during the same period last year.

France.—Influenza is or has been prevalent in central, eastern, and southern France. Statistics are not as yet available except for Paris, where the epidemic appears to have reached its maximum about the middle of December.

Number of deaths reported at Paris November 21–December 31, 1926

	Nov. 21-30	Dec. 1-10	Dec. 11-20	Dec. 21-31
Deaths from—				
All causes	1,077	1,471	1,834	1,942
Influenza	11	55	138	130
Respiratory diseases	156	318	518	----------
Heart diseases	114	140	164	150
Senility	61	82	125	----------

Broncho-pneumonia is the most common fatal complication. Deaths are more frequent among women than among men and are most numerous among persons of advanced age.

Distribution of deaths in Paris by age and sex, December 1-20, 1926

Age	Influenza		Respiratory diseases	
	Male	Female	Male	Female
Under 20	14	19	82	74
20-39	9	22	30	20
40-59	16	20	65	63
60 and over	31	62	169	333
Total	70	123	346	490

Great Britain and Ireland.—The Ministry of Health telegraphs (January 10): Incidence and mortality of influenza here is normal for time of year. The following information has been extracted from the registrar general's weekly return of births and deaths in England and Wales:

Number of deaths reported in English towns, December 5, 1926–January 1, 1927

	Dec. 5-11	Dec. 12-18	Dec. 19-25	Dec. 26-Jan. 1
Deaths in 105 towns:				
All causes	4,919	4,797	4,556	5,897
Influenza	52	60	69	86
Whole country:				
Pneumonia cases notified	1,309	1,316	1,173	1,514
Deaths in London:				
All causes	1,172	1,161	1,070	1,473
Influenza	13	18	16	17
Respiratory diseases	244	263	222	364
Heart diseases	198	170	186	252

The weekly reports for Scotland and Ireland give the following number of deaths from influenza during the week ended January 1: Edinburgh 2, Glasgow 4, Dublin 2, Belfast 4.

The registrar general of Scotland telegraphs (January 10): Death returns to 8th give no indication of epidemic.

Italy.—The Italian Health Administration wired on January 9: Sanitary conditions in the Kingdom are excellent. No centers of epidemic influenza have so far been reported.

Netherlands.—The health administration states (January 7): Influenza has been prevalent since Christmas, the number of absences for sickness among the personnel of the public services is two or three times as high as in January, 1926. Statistics regarding the personnel of the municipal services available for Amsterdam and other towns show that those who are occupied in open air, such as tramway employees and the police, have suffered much less than those who are not exposed to the cold. The proportion of sick among the personnel varies from 10 to 20 per cent; 25 per cent of the nurses at one of the Amsterdam hospitals are sick. The cases have hitherto been of benign character. There are few complications and deaths. Since the beginning of the epidemic there have been only 2 deaths at Amsterdam, 3 at Rotterdam, 3 at The Hague, and 4 at Utrecht. Only a few cases are being cared for in hospitals. The situation is much the same in other towns and rural districts. No general measures have been taken.

Norway.—The Norwegian Health Administration cabled the following information (January 8): Influenza has hitherto been benign in character and of the usual type. Monthly reports for December are just beginning to come in. There were reported during the month at Oslo, 501 cases and 2 deaths from influenza, 913 cases and 3 deaths from bronchitis, 32 cases and 7 deaths from pneumonia. In smaller towns, 639 cases and no deaths from influenza, 1,588 cases and 2 deaths from bronchitis, and 91 cases and 7 deaths from pneumonia.

Sweden.—The Swedish Health Administration states (January 8): Influenza has not as yet appeared in any manner unusual for the season nor under any form more serious than usual.

Switzerland.—The following information has been received from the Federal Health Service (January 8): Since about the 10th of December an unusual prevalence of influenza has been remarked in Switzerland. The epidemic has spread in certain parts of the country and especially in the canton of Berne, Basel town, and Geneva. In the beginning of the epidemic the cases were of the usual benign character; although the vast majority of cases are still benign, pulmonary complications are actually less rare than before. A certain number of deaths have been reported at Basel; for example, there were 42 deaths from the 26th of December to the 6th of January, with a maximum of 7 deaths on January 1. Deaths occur mostly among persons of advanced age, and there is a marked predominance for the female sex. It appears that the epidemic is now decreasing in the three cantons, Berne, Basel, and Geneva, where it first appeared. A recrudescence is now remarked in other cantons, such as Zurich and Soleure. Schools have been closed in the cantons affected by the epidemic and visits to hospitals prohibited. The following table summarizes the cases reported in the various cantons:

Influenza cases reported in the cantons of Switzerland, December, 1926

Canton	Dec. 5-11	Dec. 12-18	Dec. 19-25	Dec. 26, 1926-Jan. 1, 1927
Berne	510	1,144	852	561
Basel		160	2,487	5,126
Geneva		5	721	2,533
Zurich		1	30	256
Soleure			6	458
Lucerne				54
Thurgovie				58
Vaud			10	(1)
Neuchatel				15
Valais				(1)
Fribourg				(2)

[1] Epidemic. [2] Numerous cases.

During the week ended January 8, 3,149 influenza cases were reported at Geneva.

Czechoslovakia.—The Health Service reports (January 8): Usual seasonal prevalence of mild influenza.

LATER INFORMATION

A cablegram received January 26, 1927, from the Health Section of the Secretariat of the League of Nations gives the following later information:

Influenza has decreased markedly in France, Spain, and those parts of Switzerland which were affected early. The disease is very prevalent, but mostly of mild type, in southern and eastern England and in Denmark, Netherlands, Hungary, and Bulgaria.

SOME SPECIAL FEATURES OF THE WORK OF THE PUBLIC HEALTH SERVICE

In the PUBLIC HEALTH REPORTS of December 10, 1926, there was printed a series of eight articles from the United States Daily which gave a sketch of the general work of the United States Public Health Service.

The United States Daily has, since that time, printed a considerable number of articles relating to special phases of the research and administrative activities carried on by the United States Public Health Service.

The publication of the first series in the PUBLIC HEALTH REPORTS caused a considerable number of very favorable comments to be received by the bureau, and resulted in numerous requests for large numbers of the reprints of this statement of the service work. It has therefore been thought desirable to reprint, with the permission of The United States Daily, the remaining articles on public health work, and these articles are being printed in this issue and the following issue of the PUBLIC HEALTH REPORTS for the information and use of health officers and other interested persons.

SCIENTIFIC RESEARCH

On a hill overlooking the Potomac River, near the Lincoln Memorial in the National Capital, is a group of red brick buildings that sometimes excites the curiosity of tourists. It is here, adjoining the Naval Hospital, that the Bureau of the Public Health Service has its laboratory, where studies are made that intimately concern the health of every man, woman, and child in the country.

Because this laboratory exists, for instance, every person who is vaccinated may rest assured that the vaccine is as pure and potent as it is humanly possible to make it. Not only is this so with respect to vaccine virus, but it applies with equal force to the other vaccines, serums, antitoxins, and similar products so much used by the physician at the present time.

But the control over the production and sale of biologic products, as they are called, is but a small part of the activities of the Hygienic Laboratory. The most important work of the laboratory pertains to the study of the cause and cure of disease in man.

The institution started as a small clinical laboratory connected with the Marine Hospital in New York in 1887. Later it was transferred to Washington, and early in the present century Congress established it as a separate institution under the Public Health Service.

So important did Congress consider the health of the people that it directed that the Hygienic Laboratory should engage in the investigation of infectious and contagious diseases and other matters pertaining to the public health.

The law is wide in its scope; certainly none imposes greater burden of responsibility on a Government institution.

The members of the scientific staff at the Hygienic Laboratory take nothing for granted; they have to be shown. And when any member makes a statement of the results of his researches he never does so with a fanfare "announcement." He publishes his findings in a Government bulletin, of which 142 have been issued so far, or he submits a carefully worded article to a medical or other scientific journal.

These papers are often so technical that when a new medical or chemical fact is discovered the newspapers of general circulation seldom grasp its import. A case is known, in fact, where a newspaper man wrote up a human interest story centered in one of the discoveries of the Hygienic Laboratory and it was rejected by a well-known syndicate because the facts, while admittedly well presented and truthful, were contrary to the popular idea of what they should be.

In searching out Nature's secrets and applying them to the benefit of mankind the scientist goes about it systematically. He no longer applies hit-or-miss methods. When a new disease puts in an appearance—and this has happened recently—the Surgeon General of the United States Public Health Service delegates one of his experts, usually from the Hygienic Laboratory, to run it down, giving the latter such assistants as he may need.

The expert begins by visiting the community where the disease is prevalent. Arrived there, he consults the health officer and physicians who may know anything about the disease, studies local conditions, finds out everything he can as to how the disease travels from person to person and from place to place, gets clinical specimens from patients, probably inoculates animals with these specimens, and enters upon a laboratory study of the disease.

By employing bacteriological and chemical methods he seeks to isolate the germ of the disease. That done, he proceeds to learn all about this germ; how it lives; what it feeds on; how it grows and reproduces; and how it may be destroyed or otherwise prevented from infecting people.

As the facts are discovered, the scientist publishes his findings in a scientific journal so that others working on the same problem may profit by his labors.

Of course, much of the work undertaken fails to yield useful results. Indeed, as is true of most experimental work, failures usually outweigh in numbers experiments with successful results.

For administrative purposes the Hygienic Laboratory is organized into several divisions, each cooperating and interlocking. It is the aim of the laboratory to avoid hard and fast rules that might inter-

fere with the free working out of research problems. The scientific staffs of the four divisions—zoology, pharmacology, chemistry, and pathology and bacteriology—the latter divided into sections of pathology, infectious diseases, nutritional diseases, and tuberculosis—are encouraged to consult each other on their various problems without formality.

The administrative work at the Hygienic Laboratory is subordinated to, and not allowed to interfere with, the research activities. Salary payments are made at rates of pay varying from $1,140, the lowest, to $7,000 a year. Men and women are on an equal footing as regards pay and work. Promotions are not necessarily by seniority; they depend upon individual accomplishment and importance of the work performed. Three of the divisions of the laboratory are presided over by scientists who hold the title of professor.

The director of the laboratory is selected by the Surgeon General from the medical staff of the Public Health Service, not necessarily from those on duty at the Hygienic Laboratory. The present director, Dr. G. W. McCoy, was brought from the leprosy research laboratory in the Hawaiian Islands, where he spent four years after having served for the same period as chief of the plague laboratory on the Pacific coast. Since the Hygienic Laboratory was established in 1887 there have been only four directors.

It not infrequently happens that a particularly well-qualified research man or woman who is getting things done in the laboratory receives offers from private establishments which, from a financial viewpoint, are too attractive to turn down. Within the past six or eight years the laboratory has lost a number of its best scientists by this route.

It is customary for the Surgeon General to detail medical officers from the field staff of the Public Health Service to the laboratory, as the need arises, for purposes of conducting researches in special medical problems. Young medical officers are sent here for training and to familiarize themselves with the latest and most approved methods of handling diagnostic and epidemiologic work. More than half of the commissioned personnel of the Public Health Service, including the Surgeon General, have "served time" at the Hygienic Laboratory.

Foreign governments from time to time detail their scientists to the Hygienic Laboratory to study and acquaint themselves with the work carried on there and with new methods of handling difficult problems of technique. The foreign doctors are always made most welcome and are shown the best that the laboratory has to offer.

The staff includes a number of women scientists working in bacteriology, zoology, pharmacology, and chemistry. Some of the notable contributions that have come from the laboratory have been

the result of the work of the women workers in the field of experimental medicine.

In research work the staff members are encouraged to select their own problems. If a scientist's choice is approved by the director of the laboratory, he is told to go ahead—always with the understanding that he is to continue on the problem until he obtains results of some kind, whether positive or negative.

At the outset of any piece of research work no one can predict the outcome. The Public Health Service sought for a quarter of a century some means of combating Rocky Mountain spotted fever, and it was not until 1925 that anything even remotely promising was evolved.

For more than 100 years the medical world sought a clue to the cause and cure of pellagra. After many years of study and experimentation the scientists attached to the Hygienic Laboratory have brought the underlying facts concerning this disease to the family physician, and one more of the mystery diseases has fallen before the attacks of knowledge.

While in much of the research work at the Hygienic Laboratory animals are used for experimental purposes, in some cases human experiments are carried out, the scientists themselves being the first to volunteer.

In some instances tragedy has stalked the research scientist. The personnel of the laboratory has suffered a good many serious accidents in connection with its investigations. Two men have acquired typhoid fever, one recovered, the other died from the disease; three men working at the branch laboratory in the West established especially for the study of Rocky Mountain spotted fever acquired the disease and all died. A total of 12, men, 6 at the Hygienic Laboratory and 6 at the branch laboratory at Hamilton, Mont., acquired tularaemia. Fortunately, all recovered.

Three of the workers acquired Malta, or Mediterranean, fever, a disease little known in this part of the country, although not so rare in our Southwestern States, from one of whom the infection was transferred to the Hygienic Laboratory for study. Fortunately, all recovered, but one is still suffering from some effects of the infection.

The Hygienic Laboratory uses in its work a large number of laboratory animals, ranging all the way from the horse and the monkey down to the lowly mouse. It is a matter of utmost importance to the successful outcome of experiments that the animals shall be carefully and regularly fed and that they shall in every respect be treated in the most humane manner possible. One of the inflexible rules of the laboratory is that no one can remain at the institution who fails in the humane care of animals.

ROCKY MOUNTAIN SPOTTED FEVER

From time immemorial the sheep herder or shepherd has been accepted as an ideal type of healthy manhood.

Much that has been said on this subject is true; the shepherd is, normally, a healthy person, and probably his outdoor existence has much to do with his health. But modern science has discovered that the sheep herder's work exposes him to some diseases peculiar to his occupation.

One of the most dangerous of such diseases is Rocky Mountain spotted fever. It has existed in the northwestern United States ever since that section was first settled; and there is no reason to suppose that the Indians did not have the affection prior to the advent of the white man, though there are no authentic records.

One of the most remarkable features of Rocky Mountain spotted fever is the fact that it is geographically limited to a small section of the United States. Moreover, the virulence of the disease varies with the locality. For example, in the Bitterroot Valley of Montana the mortality is 80 to 90 per cent, while in the neighboring State of Idaho it is often considerably lower.

Owing to its limited distribution, Rocky Mountain spotted fever is obviously not as well known as other less fatal scourges. However, of late years the growing economic importance of this section of the country has demanded a solution of the problem.

The Public Health Service, at the request of local authorities, began investigations of this disease as early as 1904. Already three men from the service have sacrificed their lives in this work. Passed Asst. Surg. T. B. McClintic and Laboratory Assistants William Gettinger and Henry Cowan contracted this disease while carrying out experimental studies and died within 10 days of infection.

It has been established that Rocky Mountain spotted fever does not depend upon man for its continued existence; hence it can not be wiped out by segregating or curing the persons suffering from it. The disease occurs among small rodents and passes from rodent to rodent by means of ticks.

So far as can be ascertained, the rodents are not seriously inconvenienced by the infection, but they are capable of infecting any ticks which may feed upon them for a period of about 10 days. In this way the disease is maintained in nature.

The same ticks which bite the rodents will also bite man, if given an opportunity, and in man the disease is frequently fatal—always serious.

The intensive studies at the Hygienic Laboratory in Washington and at the branch laboratory at Hamilton, Mont., carried on since 1922, have culminated in the discovery of a protective vaccine which has definitely been shown to protect rabbits, guinea pigs, and monkeys.

The use of the vaccine among human beings has been so encouraging that it is believed it will be a major factor in the control of this dread malady.

Since one attack of the disease apparently develops an immunity to future attacks, the possibility of a vaccine suggested itself at once to the investigators. Here an initial difficulty was encountered; for it was found that the virus could not be cultivated in the usual laboratory methods, in a test tube.

But it was also discovered that the virus is developed and carried in the bodies of the ticks which transmit the disease. Hence it was decided to use the ticks as test tubes and prepare the vaccine from them. The ticks were allowed to feed upon infected guinea pigs until they had become thoroughly infected themselves. Then at the time when experiments showed the virus to be most concentrated, the ticks were eviscerated and ground up and an emulsion was prepared with a 0.5 solution of phenol, the preservative used in most vaccines.

Experimentation upon animals indicated the efficacy of this vaccine, and, as a final step, in 1924, Dr. R. R. Spencer took the first dose administered to a human being. The results were in no way harmful and the blood of people so vaccinated has since been shown to neutralize the virus. The preparation is known as the Spencer-Parker vaccine, because it was discovered jointly by Doctor Spencer and R. R. Parker, special entomological expert of the United States Public Health Service, who has directed much of the work at the branch laboratory at Hamilton, Mont.

It is believed that the vaccine for Rocky Mountain spotted fever is the only preparation of its kind ever made from an insect host for human use, and if it fulfills its expectations, it has established a new method of attack upon insect-borne infections, of which there are more than 20.

Since the vaccine was discovered it has been tried out in various ways and, while still regarded as more or less of an experiment, there is considerable evidence to indicate that it is an effective preventive. During 1926, in the Shoshone (Idaho) district, a group of 300 sheep herders were selected and 140 were vaccinated. None of the men vaccinated developed the disease, although they all worked in the areas known to be infected.

Of the 160 sheep herders who were not vaccinated and whose records were kept as a control group, 8 developed cases of the fever. In the same area there were 25 other cases among persons of other occupations who had not been vaccinated.

In the Bitterroot Valley, where the fever assumes a particularly virulent form, 600 persons were vaccinated and none contracted the disease.

Among the laboratory workers who were exposed to the fever there were 5 virulent and fatal infections before the vaccine came into use, and there have been 4 very mild cases among the laboratory workers who were vaccinated. One of these mild cases was a janitor 62 years old, who was infected with the Bitterroot Valley strain and recovered—the only case on record in which a person over 60 years old recovered from this particular strain.

These mild cases among the vaccinated in the Bitterroot Valley indicate that lives were saved by the vaccine, but that still larger doses must be given to prevent entirely this virulent type of the disease.

TULARAEMIA

There is a widespread assumption that the sole function of medical science is to cure disease—an assumption based upon a lack of accurate knowledge of conditions. For, while it is true that the primary reason for the existence of medical science is the preservation of the bodily health of man, it is also true that infectious disease always comes from without, and that exact knowledge is first demanded as to where the infection exists in nature, how it finds entrance to man's body, and where it localizes in his body before any intelligent search for a cure can be undertaken.

Discovery of a disease in the scientific sense does not mean a mere collection of statistics showing that a certain number of persons exhibited certain symptoms and an ascertained percentage of these persons died. What medical science wants to know is what caused the symptoms and how that cause may be removed. In many instances the discovery of the causative agent is as difficult as devising curative methods, although this is not universally the case. But it is obvious that only by blind chance can a cure be devised before the causative agent has been discovered and studied. Hence, the discovery of a new disease is an important milepost in medical history.

In the history of human medicine there is only one instance in which American investigators alone have discovered a disease of man, isolating its causative agent, determining its sources of infection, its modes of transmission to man, and otherwise elucidating the many essential problems connected with the complete knowledge of a disease. That is the story of tularaemia.

Beginning in 1910 and continuing until after the World War, there came from Utah and adjacent States reports of the ravages of a peculiar disease of man popularly known as "deer fly fever," resembling septic infection in some of its characteristics, and causing serious disablement of farmers in the busy season of midsummer when their sugar beets needed plowing and their alfalfa required cutting.

Lack of funds and available personnel prevented an investigation of this disease by the United States Public Health Service until 1919, at which time an officer of the service was sent to Utah for that purpose. In the ensuing investigation, the laboratory research method was followed—and the first principle of that method is to reproduce the disease to be studied in animals which may be subjected to laboratory experimentation. Hence, the equipment taken to Utah for the investigation included an assortment of guinea pigs, rabbits, white mice, and white rats.

The disease in Utah in its most frequently occurring form manifested itself by an ulcer at the point of primary infection and enlargement of the lymph glands which drain that ulcer. At the outset of this investigation some pus was taken from an ulcer on one of the sufferers and injected subcutaneously into the animals selected for experimentation. Within a few days the animals thus treated sickened and died, and at necropsy they exhibited the same characteristics as to pathologic conditions of lymph glands, spleen, and liver as had been noted by Dr. Geo. W. McCoy, now director of the Hygienic Laboratory, when he discovered among the ground squirrels of Tulare County, Calif., in 1910, a new disease which he called a "plaguelike disease of rodents."

Although in 1910 there was not, nor has there been up to the present time, any indication that Doctor McCoy's "plaguelike disease of rodents" was ever transmitted from a ground squirrel to man, yet Doctor McCoy made a careful tabulation and analysis of his findings in squirrels, all excellently illustrated.

The result has proved the truth of the axiom that knowledge is never valueless, because Doctor McCoy's findings of 1910 in the ground squirrels of Tulare County, Calif., found instant recognition by Doctor Francis in 1919 in a sick man of Millard County, Utah.

Now known to be a disease of man, a change of name from "plaguelike disease of rodents" to "tularaemia" (after Tulare County) was welcomed, not only for scientific accuracy, but by the sick themselves; for what human being would not recover more quickly from the euphonious "tularaemia" than from the depressing "plaguelike disease of rodents"?

In man, tularaemia manifests itself as follows: An ulcer appears at the site of primary infection, and this is accompanied, or possibly preceded, by a swelling of the lymph glands which drain the area in which the ulcer is located. Fever is always present, the febrile period lasting from two to three weeks. The symptoms frequently lead to a diagnosis as typhoid fever; but when the patient gives a negative Widal reaction a blood test for tularaemia should be made. The diagnosis of tularaemia is like working a cross-word puzzle; the trick is to find the letters which spell R-A-B-B-I-T.

Wild rabbits, ticks, and flies are the known agents through which man is infected with tularaemia. The ticks and the flies transmit the disease by biting a man after they have bitten an infected wild rabbit.

Direct transmission from rabbits to man occurs only when the internal organs of the rabbit are handled. Cuts, scratches, punctures, and other abrasions of the skin of the hands afford a portal of entry for the infection when dressing an infected rabbit. In addition, there is good evidence for believing that the bacterium of tularaemia is one of those rare organisms which can pass through the unbroken human skin. In any event, laboratory workers, market men who skin and dress rabbits, cooks, hunters, all who handle the internal organs of infected animals are very likely to contract the disease. Most of the patients recover, but not infrequently the disease is fatal. It should be remarked that it is only wild rabbits which seem to be subject to the disease. There is no record of an infection in the rabbits which are raised domestically for food or laboratory purposes or by rabbit fanciers. Probably this is due to the absence of ticks on the domesticated rabbits.

Every person—six in all—who has worked on the tularaemia investigation in the Hygienic Laboratory in Washington has contracted the disease. All have recovered and, fortunately for the investigation, it has been found that persons who have once had the disease are thereby immunized. The work is now carried on by an immune crew of workers in a room shut off from the rest of the building and avoided as much as possible by those having no official business there.

In the branch laboratory at Hamilton, Mont., six more persons contracted tularaemia after they had performed necropsies on infected animals, and a similar case has been reported from Los Angeles.

Shortly after the discovery of the disease was announced, the Public Health Service received a request from the Lister Institute of Preventive Medicine in London for samples of the bacteria of tularaemia. A culture was prepared and sent to the British scientists, who inoculated laboratory animals with it. In a short time three of the scientists who transferred the infection from animal to animal in the laboratory were brought down with the disease.

At this point the authorities of the Institute took administrative charge of the investigation and ordered all of the cultures and infected animals and every other trace of the disease wiped out. So far as is known, that was the last case of tularaemia in the British Isles. No cases have been recognized in Europe, although the Public Health Service is constantly asked for information on tularaemia by European medical authorities who suspect that the disease may exist there. So far, definite cases of tularaemia have been recognized in 28 States

of the United States, the District of Columbia, and Japan. It has been established that tularaemia is identical with "Ohara's disease," which has been known in Japan for several years.

From the viewpoint of the general public the most important question regarding tularaemia is "What is the cure?" And to that it must be answered that there is no known cure, but there are simple preventive measures which are effective. If all laboratory workers doing necropsies on infected animals and all cooks, market men, hunters, housewives, and others who dress rabbits, would wear rubber gloves when doing so, they would not contract tularaemia. It should be remembered that thorough cooking destroys the infection in a rabbit, thus rendering an infected rabbit harmless for food.

It is idle to speculate on the possibility of wiping out the disease by wiping out the rabbits. Anyone who has seen the profusion of jack rabbits in the Western States will appreciate the futility of such procedure. And even if all the rabbits in the United States were wiped out to-morrow, tularaemia would not vanish because the ticks which have acquired the disease by biting infected rabbits pass the infection through their eggs to the next generation of ticks and form a permanent reservoir of infection.

The only treatment which can be advised for tularaemia in the present state of medical knowledge is rest in bed and, in general, such care under a competent physician as will build up the patients' resistance and aid the body in throwing off the attack. But it is almost always a long and rather trying course which the disease runs.

No preventive vaccine or curative serum has yet been perfected, although there is constant experimentation along that line.

TUBERCULOSIS

In the eternal battle between science and disease there is a certain logical sequence in the tactics of the scientist. In general terms, this sequence is isolation of the cause of the disease, isolation of a substance or discovery of a method which will overcome the cause, and the development of a method to apply the remedy to the cause. In each phase of the plan of campaign, of course, there must be endless experimentation, checking and rechecking of results, and all possible precautions to insure accuracy.

There is a general feeling that isolation of the cause of the disease—at least in diseases of bacterial origin—is more than half the battle. However, there are exceptions, and one of these exceptions is tuberculosis, the disease which costs approximately half a billion dollars in the United States each year—more than the Army, nearly twice as much as the Navy, and second only to the national debt in comparison with Government expenditures.

The tubercle bacillus was discovered nearly 50 years ago. Hundreds of disease germs have been discovered since, and many of

them have succumbed to cures resulting from the scientific research following their discovery. But the most ubiquitous and best known of all the germs has so far proved elusive.

There is a popular impression that the battle against tuberculosis has been practically won as a result of the educational campaigns and the improvements in the hygiene of living during recent years. But a disease which kills 100,000 persons every year in the United States can hardly be said to have been conquered, and to scientists there are many disquieting possibilities in the recurrence—and in some cases even the increase—of the prevalence of tuberculosis in communities where all known preventive methods have been tried.

Five years ago the National Tuberculosis Association appointed a research committee and entrusted it with funds to seek a more intimate knowledge of the life history and habits of the tubercle bacillus. The members of that committee were—Dr. William Charles White, chairman; Dr. Allen Krause, director of the Kenneth Dows Research at Johns Hopkins; Dr. Paul Lewis, of the Rockefeller Institute for Animal Research at Princeton; and Dr. Charles Hatfield, director of the Phipps Institute for the Study of Tuberculosis, in Philadelphia.

After long consideration and study involving problems too numerous to mention in the scope of the present article, and after obtaining the cooperation and guidance of the Public Health Service, this committee worked out a plan of attack designed to make use of all the knowledge of the tubercle bacillus gained through the long years of research since its discovery, and at the same time to progress in knowledge by obtaining the services of the best research workers in the world in the attempt to solve the problems with which each worker is peculiarly fitted to deal.

There is in chemistry what is known as the Mendeljeff table, a series of the known and unknown elements worked out years ago by the Russian scientist from whom it takes its name. The table is based on the atomic weights of the various elements; and from a study of these weights Mendeljeff was able to declare that at certain places on the table in between the then known elements, there exist other elements of specified atomic weight. Several of these gaps have been filled in by discoveries since Mendeljeff prepared his table; others remain to be filled.

When the present investigation of tuberculosis was undertaken, those in charge of it prepared a sort of Mendeljeff table of the facts then known about the tubercle bacillus. They said, in effect: "Here is a fact about a certain phase of the life cycle of the bacillus and here is another fact about another phase, but the two phases are not continuous. Hence research should be concentrated on the gap between the first fact and the second."

Once this plan had been worked out, the problem which presented itself was the selection of the scientists best qualified to work on the various gaps in the knowledge of the life cycle of the bacillus. Arrangements had to be made to interest these scientists in undertaking the particular work assigned to each. When this had been done -- and it was an undertaking of considerable magnitude, because all of these selected scientists were men of prominence and nearly all were already engaged on other research work of their own— then it became necessary to devise some method of keeping the entire work coordinated.

Under the system finally worked out, each scientist, when he has studied his particular problem and has mapped out a method of research, goes before what might well be termed a jury of fellow scientists and presents his plan with his arguments to support it. If the jury approves the plan, he goes ahead; if it is not approved, he seeks another plan. Or he may present several plans and the jury will select the one to be carried out.

It is the function of the office of tuberculosis research work of the Hygienic Laboratory of the Public Health Service to check many of the research results, to coordinate the various pieces of related research work on tuberculosis now being carried on in laboratories throughout the world, and to arrange for the periodic conferences at which decisions are reached by the scientific juries, as well as to carry on its independent share of the research plan. The progress that has been made is of such a nature that an explanation would be too technical for the purposes of the present article, but it may be said that the gaps in the table of knowledge are gradually being filled in.

SCARLET FEVER

Many years ago it was noted that, on making throat cultures from scarlet fever cases, one particular kind of germ was found more frequently than any other. This microorganism is known as a hemolytic streptococcus, called coccus because it is round in shape, called streptococcus because the cocci form chains, and called hemolytic because this streptococcus destroys the red pigment in blood cells, when cultured in medium containing blood.

As long ago as 1902, Doctor Moser, in Vienna, used a strain of this organism to immunize horses. He then used the blood serum from these horses to treat cases of scarlet fever, with favorable results. A little later, Doctor Gabritschewski, of Moscow, used killed broth cultures of hemolytic streptococci to immunize children.

Repeated attempts were made to produce scarlet fever in animals, without conclusive results. This fact, together with the failure of many workers to find hemolytic streptococci in all cases of scarlet fever, led to the generally accepted conclusion that these organisms

were the most common secondary invaders in scarlet fever and were the cause of many of the complications, as middle ear disease, but were not the single etiologic agent.

In 1923, Drs. G. F. and G. H. Dick (man and wife), working in Chicago, announced the production of experimental scarlet fever in volunteers by inoculating them with cultures of hemolytic streptococci of scarlatinal origin. They found also that these streptococci when grown in media produced a toxin much as diphtheria bacilli do.

After a great deal of experimental work these doctors found that by using a carefully determined strength of this toxin and making small injections (one-tenth of a cubic centimeter) into the skin of individuals, they could determine which individuals were susceptible to the toxin and which were not. This test became known as the Dick test and has been widely used to determine susceptibility or immunity to scarlet fever.

In addition to using this toxin for testing the susceptibility of individuals, the Doctors Dick also discovered that, by giving increasing doses of the toxin to those found susceptible, such individuals would become insusceptible and instead of showing a positive Dick test would give a negative reaction when tested. This fact is being put to practical use in immunizing children against scarlet fever.

In testing children for susceptibility, if too weak a toxin (scarlet fever streptococcus toxin) is used, it will fail to show all the children who are susceptible; and if too strong a toxin is used more children will show a positive reaction than are susceptible to scarlet fever. Again, if too little toxin is used in immunizing children, the immunization will not prove successful, and if too much is injected, the child will react in an unnecessary and undesirable manner (rash and fever).

In view of the foregoing, it can readily be seen that it is necessary that the strength of toxins used in this country should be accurately determined. Under the law regulating the manufacture and sale of biologic products in interstate traffic it is the duty of the Federal Government to see that this is done. To do this the Hygienic Laboratory of the Public Health Service distributes, to the manufacturers making this product, a carefully standardized toxin with which the manufacturers can compare their toxins and thus determine the proper strength to be used for susceptibility test and the proper amount to be used in immunization.

The present problem in connection with this toxin is the determination of the best methods of preservation. At present a new toxin is made and standardized at the Hygienic Laboratory each year. It is hoped that a method of preservation may be found that will make possible the preparation and storing of enough toxin to last several years.

We now think that the serum made by Doctor Moser many years ago was of value in the treatment of scarlet fever, because it contained an antitoxin against the toxin of the scarlet fever streptococcus. Doctor Dochez, of New York City, found that, by using a special technique, he could produce an antitoxin which gave good results when used in treating scarlet fever. The Doctors Dick found that by using the toxin alone to immunize horses a good antitoxin could be produced.

As far as can be determined there is little or no choice in the method of antitoxin production. The horse serum containing the antitoxin is concentrated to get rid of as many of the horse proteins as possible and is then distributed by the manufacturers to physicians for use in treatment of cases of scarlet fever.

In order that the physician may treat a case of scarlet fever intelligently, he must know the strength of the antitoxin he is using. For his information the manufacturer must state the strength of the antitoxin on the label. The test of the scarlet fever streptococcus antitoxin to determine its strength is difficult, largely because, as yet, the manufacturer has no very good yardstick by which to measure the antitoxin. The Hygienic Laboratory is working on the problem of furnishing a standard antitoxin of known value with which the manufacturer can compare his new antitoxins.

The search for a standard for the antitoxin has so far presented many obstacles, but it is now thought that the Hygienic Laboratory may soon have available a satisfactory comparative antitoxin.

LEPROSY

The Public Health Service has deep interest in leprosy for several reasons. Leprosy prevails to a limited extent in the United States. In addition to the moderate number of imported cases which, for the most part, represent persons arriving at our borders and ports before the disease has developed far enough to be detected, there are a number of cases in our Gulf Coast States which have been infected in their home communities. Put in another way, the Gulf States constitute a zone of infection for leprosy, although the risk is small.

Even there the disease is rare and need not be a source of serious concern, since the health authorities are fully alive to the situation and, when a case is detected, take suitable measures looking to the prevention of spread.

The total number of known lepers in the United States is somewhere in the neighborhood of 300, and it is probable that not far from an equal number remain unrecognized. The interest of the Public Health Service lies also in the fact that all of our insular possessions have leprosy problems, some of them rather serious ones. Porto Rico and the Canal Zone each has a few cases, chiefly confined to local colonies.

In the Territory of Hawaii, where the disease is now distinctly on the decline, the infection in the past has reached as high an incidence as 3 per cent of the native population; for it is among the Hawaiians and other native Polynesians that leprosy has found a most fertile field for propagation. The number of known lepers in Hawaii at the present time is in the neighborhood of 600.

The government of the Philippine Islands has established a large and important colony for lepers on the island of Culion. The number of patients there at the present time is around 5,000, and no one familiar with the situation doubts that other thousands are still at large in those islands.

Perhaps the chief immediate interest of the Public Health Service in leprosy lies in the fact that this service has two large and important stations, established by special acts of Congress, that are devoted exclusively to the leprosy problem.

The first of these to be considered is the leprosy investigation station in Hawaii, which is under the direction of the scientific research division of the service. This station is staffed by a physician, a bacteriologist, a chemist, and scientists, who devote their time exclusively to the study of the research problems presented by the disease.

It would be difficult to find a more satisfactory place for carrying on investigations in leprosy than is afforded by Hawaii. The number of cases available for study is ample, and these patients, through long experience with the medical men assigned by the Government to this duty, have learned to trust and cooperate with the physicians of the leprosy investigation station.

This has had a distinct advantage in another way, one perhaps not foreseen when the station was established. The realization on the part of the Hawaiians that better care and treatment would be available and better prospect for recovery if they sought aid than if they remained at home, has undoubtedly led many to come forward voluntarily and seek admission to the leprosy station before they have had much opportunity to convey the disease to those around them.

The second of the Federal stations is the one located at Carville, La. This is known as Hospital No. 66, one of the important hospitals in the chain coming under the administration of the hospital division of the service. The number of patients there is about 300.

This station offers almost everything desirable in the way of facilities for the care and treatment of lepers. Nothing has been left undone that could be done to make the surroundings as delightful as possible.

The patients are well housed, well clad, and well fed, and provision is made for spiritual welfare and social diversion. The medical and

surgical staff is made up of men with special qualifications in different fields of medicine and surgery, including dentistry. Equally good professional and nursing care is available to the lepers as is to be had by the most favored citizen of any community. Investigations of a purely research nature are also carried out at this station.

It can scarcely be said that the studies at the Hawaiian station or at the Louisiana station have yielded conspicuously important results. Some details of treatment have been improved, the most recent being the discovery that radium, though not curative, is helpful in some of the nasal conditions so common among lepers. The investigations, of course, go forward year by year, and no one would think of curtailing them because thus far no very favorable results have been obtained.

Leprosy has been studied for thousands of years, and it would be almost too much to expect that in the few years since studies have been made by the newer scientific methods available a definite cure would have been discovered.

The history of leprosy is most interesting. As one author says, it is "Lost in the night time, but it maintains its supremacy as the patriarch of diseases."

Everybody is familiar with the leprosy of both the Old and the New Testaments. In the former we find it serving as an instrumentality of punishment meted out to those who have incurred Divine wrath. In the Old Testament also we find the diagnosis discussed fully and methods of control in vogue which still serve as patterns for what we do to-day.

It was largely due to the fact that ancient Hebrews dealt so intelligently with leprosy that we are justified in recognizing them as the "founders of public hygiene." In the New Testament, stress is laid on the miraculous cure of leprosy, and while cure is one of the goals of our modern investigations, we have not been able to duplicate any of the results described in the New Testament. In medieval times leprosy must have been one of the most common of diseases found in the then known world.

Isolation was carried out with varying degrees of rigor. In England it was customary, when a leper was separated from his home surroundings, to chant a burial hymn as well as to say the masses for the dead; and, finally, there was the throwing over the person of the symbolic handful of earth. Then, according to some writers, after all this ceremony, no very stringent means were used to keep the individual from mingling with the healthy members of the community, but he was required to wear a special garb and announce his coming by a bell or gong.

There was one important by-product of leprosy in the Middle Ages. As one historian has said: "It vastly aided the city hospital movement, and the building of leprosaria represented a great social

and hygienic movement and this was a wave of genuine prophylaxis as well as human charity."

In modern times leprosy prevails to a lesser extent throughout a large part of the world but with very peculiar features with regard to its geographical distribution. Leprosy is transmitted in most places in the Tropics and in some very cold parts of the world, as, for example, Iceland; so it is incorrect to speak of it as a strictly tropical disease. On the other hand, there are parts of Europe and America in which for all practical purposes the disease can not spread, or at least does not spread. Many lepers infected in the Tropics are from time to time domiciled in the British Islands; but it is extraordinarily exceptional for any case of the disease to be acquired in the British home countries.

We may come a little nearer home. For example, the communicability of leprosy from person to person is practically unknown in our Northern and Eastern States while it is well recognized as a possibility in the States bordering on the Gulf of Mexico. If we knew just why one community has this highly desirable immunity which the other lacks, probably we would be able to go much further in intelligently dealing with the public health aspects of the problem than we can at the present time. Usually rather intimate contact seems necessary to permit of the conveyance of leprosy from a leper to a well person, but we do not know the exact way in which it is carried.

There are some popular misconceptions about leprosy. One is that it is hereditary. The fallacy of this has been demonstrated by removing children from leprous parents immediately after birth. Under these conditions the children practically always remain free from this infection. There is additional evidence against hereditary infection. Another erroneous impression is that the disease is racial in its affiliations, and that the members of the dark and brown races are far more susceptible than whites. It is true that the dark-skinned races do suffer most at the present time, but we must remember that there was a time in history when the white race suffered heavily and, given the same surroundings and the same opportunity for infection, there is reason to believe that all are about equally susceptible.

Up to the present time the only way we know of dealing with leprosy in communities in which there is risk of spread is to isolate the individual. In later years, emphasis has been laid more on the matter of treatment than upon isolation, but essentially from the public health point of view the object of the sanitary office is to remove the leper from the surroundings in which it is possible for him to convey the infection to his associates.

Leprosy is not to be regarded as absolutely incurable. A certain, though small, percentage of cases recover. How much of this

favorable outcome is attributable to treatment and how much to the natural evolution of the disease is very debatable. The physicians of the modern leprosy institution anywhere, however, consider that they are not doing their duty to patients without giving them every opportunity in the way of general and special treatment. It is often astonishing to observe the improvement that may take place in cases placed in the excellent surroundings of a suitable modern sanatorium, even without special medical treatment.

MALARIA

Although a great reduction in the malaria of the United States has taken place during the past 25 years, this disease still remains one of the major public health problems of our country. Malaria is no longer commonly found north of the Ohio River, nor is it uniformly spread over the Southern States. Its habitat is in the tidewater regions of the Middle and South Atlantic States, along the Gulf coast and up the Mississippi Valley as far north as southeast Missouri and southern Illinois.

Malaria is a public health problem not so much because of the number of deaths resulting from it, nor the serious disability attending it, as because of the potential harm which malaria can do to industrial and agricultural development anywhere in the malaria belt. And a community can continue to eke out its existence without even being aware of the presence of malaria; but should it attempt any large industrial development—an impounded water project, a new railroad, or a new manufacturing plant—malaria, like the old man of the sea, is likely to spring up and throttle it unmercifully.

Such has been the history of malaria in the United States, and this is why the Public Health Service undertook the study of the malaria problem more than 10 years ago and has continued it.

The discovery that yellow fever was transmitted by a mosquito virtually solved the yellow-fever problem, at once, and forever. The discovery that malaria is transmitted by a mosquito was made earlier, but the malaria problem has not yet been solved. Why? Undoubtedly the chief reasons are the inherent differences between the two diseases and the differences in life habits of the two mosquitoes.

Yellow fever is frank in its onset and prompt in its termination—recovery or death within 10 days—and usually easy of diagnosis; while malaria is in every way the opposite—a most insidious and chronic disease, frequently very difficult to diagnose. The yellow-fever mosquito is city bred, while the malaria mosquito is from the country.

The Public Health Service began the study of the prevalence of malaria in the United States in 1914. Information has been secured

from State and local health officials and from practicing physicians, wherever malaria was thought to prevail, as to their knowledge of malaria incidence.

Thousands of malaria and mosquito surveys have been made in 13 Southern and in many Northern States. These surveys involved the collection of information from all available sources bearing upon the prevalence of malaria in the community, studies of local mosquito production, and control by suitable measures. Frequently house-to-house canvasses were made in which every individual was questioned for a history of past malaria, and a blood examination was made for present malaria infection.

An extensive malaria survey of the rural school children of the Southern States has been recently completed. More than 13,000 children were examined in this survey. Each child was examined for enlarged spleen, a result of malaria, a blood smear was taken and examined for malaria parasites, and a history of malaria in the past was obtained. From all of these different sources of information it appears that within the past 10 years malaria has been reduced at least 50 per cent within the United States, and the general tendency seems toward a continued reduction.

Apparently, however, there was an increase in malaria during 1926 as compared with the past two or three years, and the increase of mosquitoes during 1926 was pronounced all over the South. This applies not only to the malaria mosquito but to the common pestiferous mosquitoes, *Culex* and *Aëdes*. It does not apply, however, to the salt marsh-mosquitoes.

Studies of malaria-control methods have been conducted by the Public Health Service every year during the active malaria season for the past decade.

Based on its experience in the Panama Canal Zone and the extra-cantonment sanitation work which was done during the World War, it was known that malaria could be controlled under the worst conditions—provided sufficient funds were available for extensive drainage and oiling operations. But inasmuch as adequate funds for this purpose can not be secured in many rural communities in the Southern States, the main objective of the malaria-control studies of the service has been to discover easier and cheaper measures for controlling malaria than by extensive drainage and oiling. Drainage and oiling, however, are applicable in villages, and successful demonstrations of these methods of malaria control have been made in more than 350 southern cities and towns.

Following the careful study of many impounded water projects in the Southern States, it was found that some of the fundamental principles of malaria and mosquito control could be applied to them without prohibitive cost, and would result in greatly improved health conditions around these projects.

Based on these studies, the service advised that the lake bed be properly cleared before the water was impounded; that the labor employed in preparing the lake bed and dam be properly housed in screened houses and given adequate medical attention; that effort be made to control drift and flotage in the lake; that the lakes be stocked with top minnows (*Gambusia affinis*); and that mosquito production be controlled after the water was impounded by fluctuation of the water level and by oiling where necessary.

Most of the Southern States have adopted regulations based on these suggestions, and a great advance has been made toward the control of malaria around these impounded water projects. Advice was furnished to the State health authorities and to many of the power companies during the year in carrying out these regulations and meeting the various problems of mosquito control which came up from time to time.

A few years ago a service officer, Dr. M. A. Barber, discovered that Paris green in very small quantities will quickly kill the larvæ of malaria mosquitoes. Since this discovery was made, this larval poison has been carefully studied, under various local conditions, all over the United States and in many foreign countries. It has been found peculiarly applicable to conditions in southern Italy and gives promise of solving the malaria problem of that country.

During 1926 a very interesting study was made around the United States marine barracks at Quantico, Va., of the use of Paris green dusted from an airplane in killing the larvaæ of the malaria mosquito. The officers in charge of this investigation report complete success at a very small cost, and it seems highly probable that this method of destroying malaria mosquitoes may be so developed in the future that it can be applied over very large areas at a reasonable cost. The possibilities of this method of controlling malaria are very great.

Paris green will kill other mosquito larvæ as readily as it will those of the malaria mosquito, but because their feeding habits differ it has not yet been found so effective against them. The larvæ of the malaria mosquito feeds on the surface of the water, while the other common larvæ feed below the surface. A number of observations have been made during the year for the purpose of devising a method whereby the larvæ which feed below the surface can be made to ingest the Paris green particles. If an effective way for doing this can be devised it will greatly simplify the mosquito problems of the world. Any community can then well afford to rid itself of mosquito pests as well as mosquito-borne diseases.

During 1926 a careful study of screening as a means of malaria control was conducted on a plantation in the Mississippi Delta region. It has long been known that adequate screening would protect against malaria, but the problem has been to reduce the cost of

screening to the point where it would be well within reach of the average negro tenant, and at the same time make it effective. The studies which were conducted during the year seem to show that this can be done, and farm labor conditions being as they are now in the southern United States, it is certainly cheaper to screen tenant houses than it is to work with inefficient labor resulting from malaria.

It may be fairly concluded from the malaria studies conducted by the service that malaria is on the decrease in the United States; that should present agricultural conditions remain unchanged in the South, malaria will cease to be a major public health problem within the next 50 years, and if we continue to develop our measures and methods of attack by careful investigation and rigid application in the field, as we have done in the past 10 years, the solution of the malaria problem of the United States may be greatly hastened.

MALTA FEVER

Malta fever takes its name from the island in the Mediterranean where first it was studied. It has been a problem of importance to physicians and public health officials of Mediterranean countries for many years. For a long time it was a scourge among the British troops in Mediterranean stations until the discovery that the disease was transmitted through milk from infected goats which showed no evidence of disease. Prohibition of the use of goat's milk in the army and navy has practically eliminated the disease from the British troops, although it is still prevalent among the natives in the Mediterranean countries.

In the United States, Malta fever was unknown until 1905. During that year a nurse who had been attending sick soldiers in a Washington, D. C., hospital contracted a disease which was diagnosed as Malta fever by Col. Charles F. Craig, who, in his report, made the following statement:

> I am convinced that a careful study, by use of the Widal test, and the agglutination reaction with *Micrococcus melitensis,* of many of the cases of obscure continued fevers which are prevalent in this country will result in the demonstration that Malta fever is by no means a rare disease in the warmer portions of the United States, and that many of the so-called anomalous cases of typhoid fever are in reality instances of infection with the organism of Malta fever.

Further observations confirmed the opinion of Colonel Craig. Army medical officers studied the obscure continued fevers in the States along the Mexican border where goats are raised commonly, and they found Malta fever endemic in those regions. Ordinarily the cases are sporadic, but one outbreak occurred in Phoenix, Ariz. It was reported by Dr. G. C. Lake, of the Public Health Service. He found 35 cases which had developed the disease in Phoenix during the summer of 1922. The infections were traceable to goat's milk.

In 1918, Miss Alice C. Evans, bacteriologist of the Hygienic Laboratory, made the observation that there is a very close relationship between the organism which causes Malta fever and that which causes contagious abortion in cattle. It was found that the two organisms are indistinguishable by ordinary laboratory methods, although a slight difference can be detected by the use of a certain complicated and tedious test.

It is interesting to speculate why the resemblance between the organisms of Malta fever and contagious abortion of cattle had not been recognized earlier. Apparently the names had something to do with it. The question is sometimes asked, "What is in a name?" In this instance the names seem to have blinded bacteriologists to the similarity of the casual organisms of these two diseases.

Bacteria (like people) have two names. The Englishman, Bruce, discoverer of the causal organism of Malta fever, called it "*Micrococcus melitensis.*" The first name, micrococcus, means "small kernel." It is applied to bacteria which are spherical, or nearly spherical in form. In 1897, 10 years after Bruce discovered the *Micrococcus melitensis*, a Dane by the name of Bang discovered that contagious abortion in cattle is due to a germ which he called *Bacillus abortus*. The first name, bacillus, means "small rod." It is applied to bacteria which are of the form of small rods.

The early bacteriologists (the science of bacteriology is less than a half century old) held the theory that a coccus must always be spherical and a bacillus must always be of the rod form with never a transition from one form to the other, a theory that has been found to be untenable. As a matter of fact, cultures of the organisms under discussion are a mixture of coccoid and bacillary forms. It happened that in the strains studied by Bruce the coccoid forms predominated, whereas in the strains studied by Bang the bacillary forms predominated. In the two separate baptisms the similarities of these two organisms were concealed for two decades. It is as if twin brothers had been adopted by different families and given different surnames, and for 20 years no one recognized the similarities between the boys because they were seen at different times and in different places.

The observations of Miss Evans were confirmed by Dr. K. F. Meyer and his associates in the United States and by investigators in Germany, Austria, South Africa, Italy, the Netherlands, Egypt, Tunisia, and Japan. From all of these countries there has come the confirmation that the organisms from the two diseases are alike in appearance, behavior, and capability. This point having been established, there arose a question as to why Malta fever was unknown in regions where cow's milk was used. For several years there was no answer to that question. Then the answer came. It is that sporadic cases of Malta fever do exist in all parts of this country. There are

not enough data at hand to estimate the degree of prevalence, but it appears certain that there are not nearly so many cases among those who drink infected cow's milk as among those who drink infected goat's milk.

In countries where Malta fever has been known to be endemic, diagnosis is very difficult on account of the varied manifestations of the disease and its resemblance to certain other diseases. Obviously, then, the chances are almost negligible for its recognition in countries where its existence is unknown.

The first case of Malta fever in which the causal agent was definitely determined to be the *abortus*, or bovine variety, was recognized in the Johns Hopkins Hospital in Baltimore, Md., in the latter part of 1922. Each year since then an increasing number of cases have been recognized in this and other countries.

Contagious abortion among cattle is widespread. In this country it ranks with bovine tuberculosis as a source of enormous economic loss to cattle raisers. The disease is so prevalent among cattle that there is little chance for anyone to drink un-Pasteurized milk for any considerable length of time without ingesting the organism which may cause Malta fever.

Pasteurization will, however, give protection. There are reasons enough for Pasteurization of milk even if there were no danger of Malta fever, and most city populations have this protection. On the other hand, Pasteurization is not commonly practiced on farms. The farm housewife should be warned of the danger in raw milk, particularly at times when the cows on the farms are aborting.

There is another source of Malta fever infection other than cattle in regions where there are no goats. Contagious abortion is a disease, of hogs, as well as of cattle, and those who handle the infected animals or those who handle the infected hog carcasses or meat in slaughter-houses and butcher shops, are in danger of contracting the infection.

Malta fever does not have a high rate of mortality, although occasionally it does end fatally. But it is an extremely debilitating disease which usually renders the patient unfit to carry on his usual occupation for many months, sometimes for as long as two or three years.

CANCER

The last few decades have witnessed striking and even spectacular reductions in the mortality in the many diseases which formerly decimated the population. Yellow fever has practically ceased to exist. The death rate from tuberculosis, typhoid fever, diphtheria, and gastroenteritis of infants have undergone dramatic decreases. The discovery of the causative agents for these diseases, or their manner of propagation, the steadily improving sanitary conditions of centers of population, the increasing practical application of

health laws, and more favorable social and economic conditions have been adding steadily to the defenses against the the diseases which used to take such toll of childhood, adolescence, and early manhood.

Yet, in the face of man's increasing mastery over the infectious diseases, the cancer death rate has not only failed to decrease, but has apparently registered a steady increase. This increase in the death rate was not confined to the United States alone, but was recorded in practically all the civilized countries throughout the world.

This apparent increase, of course, attracted attention of students of public health, many of whom were unwilling to accept it at its face value. The optimistic urged that the growing number of survivors to the later decades of life, better diagnosis, greater precision in filling out certificates of deaths, changes in the age distribution of the population were able to account for the increase in the cancer death rate—that the disturbing increase in the mortality was apparent only and not real.

Those who took a gloomier view of the situation pointed out that the increases in the cancer death rate were too great, too general, to be more than partly accounted for in any such fashion. Of course, in the case of a disease so grim and relentless as cancer, which in 1920 was the cause of death of about one in every eight deaths in persons 40 years and over, the question of an apparent versus an actual increase in the cancer death rate provoked lively and controversial discussion.

One of the first tasks of the Public Health Service upon entering the field of cancer research in 1922 was to determine, if practicable, for the United States whether or not we were facing an actual increase in the cancer mortality. Annual vital statistics began for the United States, when, in 1900, the registration area for deaths was formed with the 10 States of Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island, and Vermont as a nucleus, the other States now constituting the registration area having been added from time to time.

A critical study of the course of cancer mortality was undertaken in these 10 original registration States because they offered the largest available area in this country furnishing a continuous statistical record for the 21-year period 1900–1920. In 1900 these States had a population of over 19,000,000 which by 1920 had increased to somewhat over 27,000,000.

After due tabulation and construction of graphs the course of the cancer mortality was analyzed. As a result of the analysis, corrections were applied for changes in age distribution of the population and improvements in the accuracy and completeness of the death returns.

As a result of this analysis the conclusion was reached that, although the actual increase in cancer mortality in the area studied is not so great as the increase in the crude death rates indicated, still there has been in the 21-year period, 1900–1920, a considerable increase in the actual death rate from cancer.

In the population aged 40 years and over the increase in the mortality rate for this period amounts to about 30 per cent. Some of the most striking increases occurred in such readily recognized cancers as cancer of the mouth and tongue, cancer of the breast, and cancer of the female organs of generation, all of which showed higher percentage increases in the death rate than cancers of sites supposedly more difficult of diagnosis, as, for instance, cancers of the stomach and liver.

This study shows that the great apparent increase in the crude mortality rates shown by the United States vital statistics for cancer is, in part at least, due to an actual increase in the frequency of the disease. The mortality rates for 1924 indicate some further increase since 1920.

The factors responsible for higher cancer death rates must evidently be sought in the increasing complexity of our modern social and economic environment. This, in turn, suggests that more intensive epidemiological studies of cancer—i. e., the study of cancer in relation to all factors in its environment—may perhaps yield some useful clue to its cause, which, so far, has baffled all efforts of scientific research.

Although the search for the cause of cancer is still fruitless, there is also the hope that research in the field of chemotherapy, or treatment of disease by chemical compounds, may result in the discovery of a compound specific for cancer. This problem well might be solved by finding a compound or group of compounds toxic for cancer cells and possessing a special affinity for them so that normal tissue cells would be spared.

In cooperation with the department of pharmacology of the Harvard Medical School, work has been done to determine whether a relation could be discovered between the chemical constitution of compounds and their penetration into and their retention and elimination by cancer cells. Rats and mice bearing inoculated malignant tumors were used in these studies. There were available for trial a large number of new arsenic compounds (made in the pharmacological laboratory of the Harvard Medical School), some new organic dyes, and some mercury compounds. New methods had to be devised for the analytical work. Although results are still far from being complete, some interesting findings have already been obtained.

Organic compounds of mercury were studied from two viewpoints: (1) The possibility of finding a compound of mercury which entered

the tumor and would injure it; and (2) the possibility that such a compound, when taken up by the tumor would render it more sensitive to radiation with X rays or with ultra-violet light.

It was found, with respect to the first possibility, that the presence of bromin in a fluorescein-mercury compound (fluorescein being an organic dye) markedly increased the amount of mercury taken up by a tumor. That this may be a general principle is suggested by the fact that this was found to be true for analogous compounds containing arsenic instead of mercury.

In regard to the second line of inquiry, eosin (an organic dye) was found to be retained by the tumors for a considerable period. Mice bearing tumors eliminated eosin much more slowly than did normal mice. Since eosin is one of the "photodynamic" substances—i. e., increases the sensitiveness of living cells to light—it seemed possible that if eosin is retained by tumors, the destructive action of ultraviolet light might thereby be enhanced. Experiments on this subject are still incomplete. However, one point of interest has been established: Tumor-bearing mice succumb to irradiation with ultraviolet light more quickly than do normal mice. Whether the previous injection of eosin into the tumor-bearing mice increased the injurious action of the irradiation was not clear; the diminished resistance seemed dependent upon the size of the tumor rather than upon the presence or absence of eosin.

Trivalent arsenic was found to be retained by the tumors much longer than was pentavalent arsenic. As in the case of mercury, the retention of arsenic by tumors could be increased by the introduction of bromine into the molecule of certain arsenic compounds containing fluorescein dyes.

So far, none of the compounds studied seemed to have an injurious effect upon the growth of tumors; yet future work may lead to the discovery of a compound which will penetrate tumors and have a deleterious action upon them.

This hope is encouraged by the work of Bell in England, which shows that colloidal lead compounds are highly toxic for cancer cells, and that by their use a number of advanced cancers in human beings have been apparently cured. However, even colloidal lead compounds which are low in poisonous qualities compared to other lead compounds, are nevertheless highly toxic to normal cells, so that the lethal dose for cancer cells lies very close to a fatal one for the other cells of the body. Therefore, considerable work remains to be done before the use of lead compounds can be generally used for cancer treatment.

Within the past two years the Public Health Service has begun work in a new field; i. e., the effects upon living cells of electric currents of very high frequency. By "high frequency" in this connection

are meant oscillating currents having a frequency of from 200,000,000 to 10,000,000 or 15,000,000 cycles per second. It is only within the past few years, through the development of the vacuum tube oscillator and associated circuits, that apparatus has become available by which such high frequencies could be reliably generated and controlled and their effects upon living cells studied.

Through the cooperation of the Cruft High Tension Laboratory of Harvard University, apparatus was developed by which the physiological action of these currents upon small laboratory animals might be studied.

Although this work is only in its beginning, some interesting results have already been obtained. In studying the effects of an electrostatic field, subject to an oscillating potential within the range of frequencies given above, it was found that the very high and the lowest frequencies studied were relatively harmless, but that the intermediate frequencies had a highly injurious effect. A zone of pronounced lethal action was observed over a band of frequencies extending from 90,000,000 to 18,000,000 cycles per second.

Since these studies show that there is a marked differential action in the effect upon living organisms in the action of high-frequency currents which is apparently due to the frequency alone, other studies are now in progress, upon which it is still too early to report, to determine if any practical application of these findings can be developed. In particular, the effects of these currents upon the growth of tumor cells is being studied.

TYPHUS FEVER

"Typhus" comes from a Greek word which means a mist or a cloud. This fever was so named because of the mental confusion or delirium which so frequently accompanied it. Originally it included what we now know as typhoid fever. Early in the last century, however, the two diseases were differentiated.

Typhus fever resembles typhoid somewhat, but it is more abrupt in onset and in termination, lasts only two weeks, and is characterized by a profuse skin eruption of a peculiar sort.

Typhus has been one of the scourges of man for centuries. It is one of the pestilences which swept through countries in the wake of devastating wars and in time of famine.

It claimed its victims by the millions during the World War. Following the invasion of Serbia by the Austrian Army in 1915, an epidemic raged in that country, causing 500,000 cases and 150,000 deaths in a single year. In Russia during the year 1920 there were 3,000,000 cases reported, and of these probably one-fourth died.

In Mexico, where it is called "tabardillo," the disease is known to have existed in the highlands since a great epidemic in 1576–1577, which, according to the writings of Padre Sabagun, carried off some 2,000,000 Indians.

Fortunately, typhus never obtained a permanent foothold in the United States, in spite of frequent importations from Europe and Mexico. During the middle of the last century, small epidemics of the disease were not uncommon in the large cities of the eastern seaboard—Boston, New York, and Philadelphia. The worst outbreaks occurred during the late forties, when, as a result of the great famine, large numbers of infected Irish immigrants came to this country.

Although the disease had been known to be associated with crowding, poverty, and filth since early times, it was not until 1909 that a French scientist, M. Nicolle, discovered that it was conveyed from one individual to another by the body louse. About the same time, Doctor Anderson and Doctor Goldberger, of the United States Public Health Service, and Doctor Ricketts and Doctor Wilder, of the University of Chicago, working independently, proved that Mexican typhus also was conveyed by the louse, thus confirming the work of M. Nicolle.

Knowledge gives power. With the means of transmission known, it was generally held that danger from typhus in the United States was practically negligible. Delousing plants for immigrants were set up by the United States Public Health Service at all ports of entry, and it was felt that even if individual cases did occasionally find their way into this country, there need be no fear of spread.

So far as the virulent European typhus is concerned, this theory has worked out well. Following the recent World War, in spite of the wide dissemination of the disease throughout Europe and parts of Asia, this country remained free except for the occasional sporadic case, usually promptly isolated upon arrival.

Recently, however, this feeling of security so far as typhus is concerned has been somewhat disturbed. Attention was first directed in 1910 by Dr. Nathan Brill to the fact that there were occurring in New York City each year a number of sporadic cases of what appeared to be mild typhus. Because of its mildness, because it showed no tendency to spread, and because of certain other features, Doctor Brill decided that the disease with which he was dealing probably was not identical with the typhus of the Old World. Doctor Anderson and Doctor Goldberger, of the United States Public Health Service, however, showed by animal experiments that the causative virus of Doctor Brill's disease was actually the same as that of Mexican typhus.

It has since been accepted that mild typhus—"Brill's disease"—is endemic in New York and some of the other eastern cities. Here, it was thought, the disease persisted because of the occasional arrival in this country of immigrants carrying infected lice. There was little tendency to spread because of the relatively few persons infested with lice.

Since the report of Doctor Brill it has gradually become evident that cases of this mild form of typhus fever were occurring in many parts of the United States—apparently independently of importation. The realization of this fact followed upon a study by Doctor Maxcy, of the Public Health Service, of certain cases occurring in Montgomery and Mobile, Ala., Savannah, Ga., and several other cities and small towns in the southeastern United States. This discovery led the service to embark upon a thoroughgoing scientific investigation of the whole question of the existence or persistence of typhus in this country and its potentialities, and Doctor Maxcy was detailed to this duty.

It seemed imperative to answer several questions which arose from the situation. Is this disease which is occurring in the southeastern United States identical with Old World typhus? Is it transmitted by the body louse, as is Old World typhus, or in some other way? Where and under what conditions does it occur? Is it becoming more prevalent? What is the danger from it? Can it be prevented?

It may be said that, for all practical purposes, the first objective has been attained. The work done thus far confirms the previous observations of Doctor Anderson and Doctor Goldberger as to the identity of the causative virus with that of Old World typhus. On the other hand, some very interesting evidence has been uncovered which indicates that this disease in the United States is not conveyed from man to man by the louse, but has some other mode of transmission.

The information which has been gathered suggests that there is some reservoir of infection outside of man. Reasoning by analogy with what is known of other diseases in this same group, it seems not unlikely that a reservoir will be found in small rodents—rats or mice. If this be true, then it is probable that man is accidently infected by the bite of some insect which is parasitic upon the rodent. It is along these lines that the field investigations and laboratory studies are being conducted.

The problem is of importance not only to this country but to the Old World as well, inasmuch as its solution may throw light upon the mechanism by which the virus of typhus survives between epidemics.

GOITER STUDIES

The Public Health Service, like other agencies engaged in safeguarding the public health, had been interested in the cause and prevalence of goiter prior to the notable experimental work carried on by Marine and Kimball in Akron, Ohio, which resulted, in 1917, in their announcement of success in their efforts to prevent the occurrence of simple goiter among the school girls of that city.

It was not until July, 1923, however, that systematic goiter studies were begun. At that time headquarters for that purpose were established in Cincinnati, Ohio. When the word goiter is used in this article it refers to a simple enlargement of the thyroid gland, and does not include enlargement due to malignant disease, or to the exophthalmic type of goiter.

The development of the goiter studies of the Public Health Service has been along logical lines. While a steady interest has been maintained in the treatment of existing goiters, it has been with the prevention of so-called simple or endemic goiter that the chief activities have been concerned. The various phases of the work may be grouped as follows:

(1) Goiter surveys and resurveys.
(2) Studies of the effects of simple goiter.
(3) Educational work.

It must not be supposed that knowledge of the distribution of simple goiter in the United States was wholly lacking prior to the surveys made by the service. Quite on the contrary, the general prevalence of the malady has been known for some time, particularly since the results of the draft examinations became available. While the information gained from the draft figures was interesting and helpful, its value has been questioned because of its restriction to men of military age. Moreover, the examinations were made by many physicians with varying degrees of skill and experience. Despite these obvious deficiencies, however, the draft figures have afforded much useful general information.

Before undertaking any surveys on its own account the Public Health Service made a compilation of all existing data on goiter prevalence. All available literature on the subject was examined and additional survey reports were obtained by correspondence with approximately 1,200 State, county, and city health officers. The combination of these data represents the most complete record of thyroid surveys yet made in this country.

Surveys were conducted in Cincinnati, Colorado, Connecticut, Massachusetts, and several other States. It was found that relatively little simple goiter was present in the New England States included in the surveys. Moreover, the malady was least frequent in localities near the coast, increasing in prevalence as the western portion of the State was approached. It was concluded that the incidence of goiter was too small in most places to warrant widespread prophylactic measures.

As a result of the State surveys undertaken by the Public Health Service it has been found that goiter is most prevalent in Minnesota, Montana, Colorado, Ohio (Cincinnati only), Connecticut, and Massachusetts, in the order named. After each survey, appropriate ad-

vice was given to the health authorities for the prevention of simple goiter. Furthermore, approved treatment of existing thyroid enlargement was cited for the benefit of practicing physicians.

In order to determine the results of prophylaxis a resurvey of thyroids has been made in Cincinnati. This, when the results have been analyzed, will show whether there has been a reduction in goiter prevalence since the original investigation three years before. Moreover, evidence of any possible ill effects of the prophylaxis will be forthcoming.

A study having for its purpose the determination of whether endemic goiter influences intelligence included examinations of 3,796 children in the sixth grade of the Cincinnati public schools. When the chronological age data, indicative of school retardation or advancement, were analyzed it was found that there were no significant variations between thyroid-normal and thyroid-enlarged children. Similarly the intelligence tests failed to show differences of sufficient magnitude to warrant the conclusion that the thyroid-normal have a keener mentality than the thyroid-enlarged.

The stunted growth of individuals deficient in thyroid tissue and the augmentation of height of those in whom the gland is hyperactive have led to the popular belief that simple goiter retards physical development. In order to gain some information on this point the Public Health Service made 12 uniform measurements of 1,341 white boys and 1,576 white girls in eight Cincinnati schools. As a result of this study it was found that better nutrition and posture, according to the estimates of the examining physicians, were slightly more frequent among the thyroid-normal children. Underweight was more frequent in the group studied among those having simple thyroid enlargement.

An investigation of the effects of simple goiter on school attendance failed to afford suggestive information of the ill effects of this condition. In fact, the attendance of the thyroid-enlarged children was slightly better than that of the normal individuals.

The Public Health Service receives many requests for information on the goiter problem. Among those seeking information may be mentioned physicians, public health officials, nurses, manufacturing concerns, advertising agencies, students engaged in writing essays, and persons who have goiter.

Many persons with goiter write to the Public Health Service for advice concerning treatment. Attracted by the apparent ease with which the malady may be prevented, they often conclude that what was useful prophylaxis should likewise be efficacious as a means of treatment. It is necessary, however, to emphasize the fact that there are certain forms of goiter which are made worse by the administration of iodine. Therefore, every patient with goiter must receive in-

dividualized treatment, an accurate diagnosis being a preliminary requisite.

In view of these facts, goitrous individuals are advised to consult reputable physicians, preferably those skilled in the diagnosis and treatment of goiter. Furthermore, goiter patients are particularly cautioned by the Public Health Service against self-treatment, the use of proprietary remedies, and reliance upon quack doctors who advertise.

Many public health workers seek advice of the Public Health Service regarding the most efficient methods of making thyroid surveys. In these instances, detailed explanations are made through correspondence or, when practicable, a representative of the service visits the community and gives a first-hand demonstration.

SOCIAL DISEASES

Among the microscopic enemies of the human race there is perhaps none which has done more to cause suffering and unhappiness than the tiny corkscrewlike microorganism known as *Treponema pallidum*, which causes syphilis. This disease in its various manifestations has far-reaching powers for evil and is all too widely distributed among our population in all classes of persons.

One of the most practical means of preventing its spread is to cure promptly such cases as can be discovered before they have opportunity to infect others. Fortunately, there are now potent remedies capable of doing this, but they are poisonous and consequently in need of safeguards to prevent them from doing injury.

One of the outgrowths of the World War is the production by American laboratories of that group of biologic products now known as arsphenamine, neoarsphenamine, and their derivatives, used chiefly in the treatment of syphilis, but having many other important uses. Prior to the war, these products, under the names of salvarsan and neosalvarsan, etc., were controlled by German patents and manufactured only in that country. In America, one firm in New York acted as the exclusive agent for this country for the German owners.

When the war cut off the supply of the German product, there was an acute shortage of these drugs in the United States. A number of substitutes were placed on the market by various domestic laboratories, and one laboratory even succeeded in making a product very similar to salvarsan. Their efforts, however, were not very successful, due chiefly to the restrictions of German patents.

After the United States entered the war, Congress, by the act of October 6, 1917, abrogated all enemy-owned patents and placed them under the supervision of the Alien Property Custodian. This opened the way for the issuance of licenses under war-time legislation for the manufacture of salvarsan, neosalvarsan, and derivatives.

The Federal Trade Commission, which acted under the authority of the War Trade Board at that time, issued the licenses and specified that the products should be known as arsphenamines, and provided that the Public Health Service should have the Hygienic Laboratory act as the laboratory control office.

The supervision thus instituted under war-time powers of the Government was continued in peace time by a ruling of the Solicitor of the Treasury that these products come within the scope of the biologics control act of 1902, by virtue of which the Hygienic Laboratory controls the production and sale of vaccines, viruses, toxins, and similar products, and the ruling later was replaced by a statutory enactment.

Other drugs commonly used in intravenous injections, such as quinine, cocaine, novocaine, and arsenicals other than those with an arsphenamine base do not come under this control.

Control of products of the arsphenamine group is highly desirable from the standpoint of protection for the public. Arsphenamine is a toxic drug the exact quantitative composition of which is known. Because of its highly complicated organic structure it is impossible for a manufacturer to produce a product of uniform strength on all occasions. The only method of insuring an exact knowledge of this strength is through biologic control—experiments with laboratory animals—and by confirmation of this information clinically.

Arsphenamines may be manufactured only in laboratories which have been licensed for that purpose by the Secretary of the Treasury on recommendation of the Surgeon General of the Public Health Service. The procedure for this licensing is the same as that followed for manufacturers of all biologic products.

Manufacturers are required to supply samples of each lot of these products for examination by the Hygienic Laboratory, and these products may not be placed on the market until they have been passed and, in the case of initial license, until clinical evidence of the safety of the preparation has been submitted by the manufacturer and found satisfactory by the Hygienic Laboratory.

In spite of all the precautions taken to insure safety in the use of arsphenamine, there are occasional unfavorable or even fatal reactions following its administration. The section of pathology and arsphenamine products control of the Hygienic Laboratory has investigated practically all serious reactions which have occurred in the Government service since control over these products was instituted. In the majority of cases it has been shown that the reactions were due (1) to some error in the technique of the preparation and administration of the drug or (2) to faulty examination of the patient, especially in relation to the effects of previous injections, and (3) in a limited number of cases to the personal idiosyncrasy of the patient to arsenic.

In no case has it been possible to prove that the reactions have been due primarily to an undue toxicity of the drug itself, although in some instances reactions have resulted from the use of a deteriorated product.

To minimize the danger from faulty technique in the administration of the arsphenamines the Public Health Service, in cooperation with the medical departments of the Army and Navy and the Veterans' Bureau, has prepared a set of detailed instructions on technique and has directed that the medical officers under these respective jurisdictions follow these instructions.

In addition to exercising control over the arsphenamines, the above-mentioned section of the Hygienic Laboratory also serves as a central pathological laboratory for all hospitals and stations of the Public Health Service, particularly with regard to the microscopic examination and diagnosis of specimens of tumors, diseased tissues, glands, etc. These specimens, removed in the course of operations or post-mortems, are sent to the Hygienic Laboratory, where they are examined microscopically and diagnoses made of the conditions.

At present the greatest field of endeavor along this line is the examination of tumors, to determine whether or not they are benign or malignant. Without this information the surgeon may be unable to determine whether a given case calls for simple treatment or the most radical procedure.

It is generally recognized nowadays that no hospital is complete without competent pathological service; but since competent gross and histological pathologists are scarce and command large salaries, it is impossible for each hospital to have its own service. The Public Health Service, therefore, makes available facilities by having the Hygienic Laboratory act as a central laboratory for its hospitals and stations.

Arrangements are made to some extent for the employment of private pathologists in emergency cases where distances would preclude an efficient service from the Hygienic Laboratory. The laboratory, in its pathological work, has the benefit of a consulting staff composed of some of the ablest pathologists in the country.

DISEASES IN INDUSTRY

The application of one branch of science to industry frequently begets problems which another branch of science must solve. Hence, it comes about that the ever-expanding utilization of scientific methods in manufacturing brings with it an ever-increasing list of health problems.

Humanity is becoming increasingly sensitive of the sufferings as well as loss of earning power which may be inflicted upon large numbers of the population because of occupational hazards.

The foregoing factors explain the existence of the office of industrial hygiene and sanitation in the division of scientific research, Bureau of the Public Health Service. It is this office which is charged with the investigation of industrial health hazards and causes of sickness in industry. Obviously, on account of the extreme broadness of the field of work, the investigations undertaken are largely confined to those industrial hazards which affect large groups of workers and which are common to many industries.

Probably the greatest single health hazard existing in industry at the present time is dust, and there are approximately between 4,500,000 and 5,000,000 persons working in the so-called dusty trades. To study this problem the office of industrial hygiene and sanitation has begun six studies which, in a general way, cover the field of the dusty trades, and in which each investigation is representative of a great class of dust. Each study is made in exactly the same way as are the others, so that in the end all will be comparable.

The dusts which have been taken up are, first, cement dust, which represents the great group of calcium and lime dusts and which are generally believed to be innocuous in so far as they tend to cause an increase in tuberculosis among the workers.

Second, hard coal dust, which is representative of the organic, or carbon, dusts. These dusts are believed to cause asthma through the development of general fibrosis of the lungs.

Third, granite dust, which is representative of the broad group of silicious dusts and which has always been regarded as extremely dangerous in producing pneumonoconiosis of the lungs and in increasing the susceptibility of the worker to tuberculosis.

Fourth, metal dusts, of which silver dust is representative. Metal dusts appear to act much in the same manner as do silica dusts.

Fifth, cotton dust, which was taken to represent the vegetable dusts, does not seem to increase the susceptibility to tuberculosis, but, on the other hand, bronchitis and asthma appear to be much above the normal in these workers.

Lastly, the office of industrial hygiene is conducting a study among the street cleaners in New York City.

In each study a group of from 500 to 1,000 workers is selected. These workers are given a complete physical examination and classified according to the length of time employed in the trade.

X rays are made of the lungs of workers in the various groups in order to determine the development of pneumonoconiosis, which might result from the breathing of the dust, and also for the purpose of comparing the degree of development resulting from exposure to the various dusts.

All absences from work on account of sickness among the workers under observation are investigated by the Public Health Service.

While the study of sickness in the dusty trades is of particular importance in understanding the health problems of a specific industrial hazard, of equal importance is the study of the causes of disabling sickness and the average duration of such illnesses in general industry. The office of industrial hygiene receives annually reports from approximately 40 industrial concerns which employ approximately 135,000 persons. These reports give the causes of absence on account of sickness which lasts eight days or longer.

The study of these reports has brought out a number of very interesting facts: First, that the respiratory group of diseases causes approximately 47 per cent of all sickness; and, second, that common colds and influenza are the most important diseases in the respiratory disease group in causing lost time.

These reports also show that the sickness rate among female workers is much higher than among male workers. It was first thought that this increased sickness rate might be due to illnesses peculiar to the female sex; but upon examination of the data collected by the Public Health Service it was found that the higher rates were practically constant for all diseases and groups of diseases except pneumonia, hernia, varicose veins, and one or two other minor diseases.

The importance of good illumination in factories in its effects on the vision of the workers and on production is obvious. In the research work in this field the office of industrial hygiene and sanitation has carried on two main projects: First, a study of the effect of different degrees of artificial illumination varying from poor to very good on the vision of workers and upon production. The results of this study have been published in a bulletin on illumination in Government post offices, and as a result of this study considerable improvement has been effected in the lighting of post-office buildings and public buildings in general.

The second field of investigation has been that relating to natural illumination. This investigation has been concerned with the relationship of outdoor and indoor illumination, and with the establishment of certain basic data upon which architectural engineers may build factories, hospitals, schools, and public buildings with dependable assurance as to the degree of natural illumination throughout the building at all seasons of the year and all times of the day.

A study has also been made of the variation in daylight in the latitude of Washington, D C., by taking daily readings by means of the Case photo-electric cell, which automatically records the daylight variations. This study is the first of a number of studies which will zone the United States from Maine to Florida, and which may form particularly valuable data in the study of relationship of disease and daylight.

The increased use of paint spraying and lacquering and similar work has brought with it an entirely new phase of an old problem—ventilation. The use of new paints and varnishes necessitates new solvents and rapid-drying preparations which were unknown to the trades 10 years ago, or which, if then used, were in such small quantities as to be negligible from a public health standpoint.

Similarly, chemical development in industry adds each year new compounds and substances about which there is little known information as to their effects on the health of the workers. This field of industrial health research must be considered of continually increasing importance if the health of many thousands of workers is to be safeguarded.

A problem of this nature which has just been completed in cooperation with the National Safety Council is the study of benzol poisoning in industry. In this investigation an extensive survey was made of the amount of benzol vapor in the air in many types of industries where adequate ventilation was furnished as compared to those where there was no such provision.

At the same time the blood picture was studied to estimate the amount of chronic poisoning. Partly as the result of this investigation, many sprays and varnishes which several years ago contained benzol in dangerous amounts have been discontinued and other solvents supposedly less dangerous are being substituted for benzol.

The general physical condition of industrial workers and the relation of their diseases and defects to their occupation has formed an important investigation in the field of industrial hygiene undertaken by the United States Public Health Service. In this comprehensive study, embracing 10 industries, the physical condition of 12,000 industrial workers was investigated, and as a result a very much clearer picture has been obtained of the development of particular diseases in specific industries, the incidence of disease and disease groups throughout life, and the relative merit of physical examination in the determination of the health of workers.

Several years ago the industrial hygiene office began a study of the posture of normal individuals, including in this group 3,000 persons ranging from 3 to 70 years of age. This preliminary study forms the basis for an investigation of posture in industry, so that once understanding the elements of normal posture it will be possible to evaluate the effects on health, if any, of those trades in which the work requires those employed to assume a type of posture other than that which has been considered normal.

The studies of industrial hygiene and sanitation necessarily enter all fields of industry whenever the effects of occupation on the health of the workers is questioned. The incidence of lead poisoning in the pottery and other industries, the prevalence of tuberculosis in

zinc mines and in general industry, the effects of fatigue and the finding of a physiological or chemical measure of fatigue, the effects of high temperature, the standardization of a sanitary code for States, and the standardization of the technique of the prone pressure method of resuscitation for persons rendered unconscious from drowning, electric shock, gas poisoning, etc., represent a few of the problems, some of which have been completed, and others of which are in the process of investigation, but as a whole indicative of the practical health work that the United States Public Health Service is carrying on for the benefit of workers and industry.

(The concluding articles of this series will be published in the next issue of PUBLIC HEALTH REPORTS.*)*

CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED NOVEMBER 15, 1926, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS, SECRETARIAT [a]

Cholera.—A continued diminution in the cholera incidence in the Far East was reported by the Health Section of the League of Nations' Secretariat in its Monthly Epidemiological Report for November. The outbreaks in Amoy, Shanghai, and Bangkok apparently had about come to an end in October or early in November, except for a few sporadic cases. The ports in French Indo-China and Singapore were entirely free from the disease in October, but cases reappeared in November. The ports of Cholon and Haiphong had been free from cholera since July, but became reinfected in November. Tonkin was the only province of French Indo-China to show an increase in cholera in October; there the reported cases rose from 200 in September to 460 in October.

TABLE 1.—*Cholera cases, or deaths, reported in the principal maritime towns of the Far East between October 3 and November 26, 1926*

Town	Week ending—							
	October				November			
	9	16	23	30	6	[1] 13	[1] 20	[1] 26
CASES								
Amoy	18	13	5	2	1	0	0	0
Shanghai	6	3	8	1	1	0	0	0
Bangkok	2	0	1	1	1	2	3	0
Saigon and Cholon	0	0	0	0	1	1	0	0
Turane	0	0	0	0	5	10	6	1
Haiphong	0	0	0	0	0	22	27	[2] 32
Singapore	0	0	0	0	0	3	2	1
Colombo	0	0	0	0	1	0	0	0
DEATHS								
Bombay	0	1	0	0	0	0	0	0
Calcutta	14	8	15	------	16	19	34	16
Rangoon	0	0	0	0	1	0	0	1
Negapatam	0	0	0	0	0	0	1	0

[1] From weekly telegraphic reports of the eastern bureau of the Health Section at Singapore. [2] Deaths.

[a] From the Office of Statistical Investigations.

Cholera appeared in northern Korea in September, and 196 cases had been reported up to September 28. "According to information received from the North Manchuria Plague Prevention Service, about 1,500 cholera deaths have been reported in Manchuria since the beginning of the epidemic early in August up to the end of September. This is the most extensive cholera epidemic in Manchuria since 1919, when about 10,000 deaths were caused by this disease. Two hundred and eighty-nine cholera patients were treated in the hospitals of Harbin, of which 226 were Chinese and 63 Russians; there were 51 deaths among the Chinese and 33 among the Russians, giving a case mortality of 23 per cent for the former and 52 per cent for the latter."

Although cholera was decreasing in India during September, the incidence remained higher than during the corresponding month of the preceding year. The number of deaths in each of the Provinces is shown in Table 2.

TABLE 2.—*Deaths reported from cholera in the Provinces of India*

Province	1926		1925, Sept. 13-26
	Aug. 29-Sept. 11	Sept. 12-25	
North-West Frontier	0	0	0
Kashmir	0	0	102
Punjab	24	6	126
Delhi	6	5	2
United Provinces	267	135	462
Bihar and Orissa	1,441	766	135
Bengal	249	299	89
Assam	11	15	3
Central Provinces	277	244	0
Madras Presidency	495	423	598
Bombay Presidency	0	0	0
Burma	102	114	2
Other Indian States	13	63	0
Total	2,885	2,070	1,519

Plague.—At Sidi-Barrani, in the Western Desert Province of Egypt (on the Mediterranean coast), where a small outbreak of plague started last August, there were 11 new cases reported between October 11 and October 21. No cases of plague had been reported elsewhere in Egypt from the middle of August to October 21.

Algeria reported 10 cases of plague in the period from September 21 to October 20—1 case at Algiers and the other 9 cases at Oran.

At Constantinople, five cases of plague were reported from October 11 to 19.

At Antelias, a suburb of Beirut, one case of plague was reported on October 22.

In Mauritius, at Port Louis, 9 plague cases were reported in October; only 1 case had been reported in the island during the preceding 9

months. At Saint Denis, on the island of Reunion, 8 cases were reported between October 21 and 31; the latest previous case had occurred on August 30.

In Madagascar, plague cases have been increasing since July, and 257 cases were reported in October, as against 186 in September and 142 in August. Cases are more numerous than in the corresponding season of any previous year of record. Both Tamatave and Majunga, the principal ports of the island, were seriously infected.

In southern Nigeria, plague was more prevalent in August (187 cases were reported) than during previous years; as in former years, Lagos and the Province of Ijebu-Ode were the sections chiefly affected. Tanganyika Territory reported 5 cases of plague in July and 2 cases in September.

Since May, plague has been more prevalent in Uganda than in previous years. The peak of the outbreak apparently was passed in June.

The incidence of plague in the various Provinces of India in September is shown in Table 3. The disease was spreading chiefly in Mysore and Hyderabad States and in the Central Provinces, but the cases numbered about the same as in the corresponding month of 1925.

TABLE 3.—*Plague declared in the Provinces of India*

Province	1926		1925, Sept. 13-26
	Aug. 29-Sept. 11	Sept. 12-25	
North-West Frontier	0	0	0
Punjab	23	49	40
Delhi	0	0	0
United Provinces	14	39	28
Bihar and Orissa	8	16	3
Bengal	0	0	0
Assam	0	0	0
Central Provinces	70	252	293
Madras Presidency	83	58	21
Hyderabad State	240	506	441
Mysore	160	228	219
Bombay Presidency	236	373	628
Burma	58	45	85
Other Indian States	16	29	137
Total	908	1,595	1,895

The only Asiatic ports reporting cases of plague during October were Rangoon (5 cases), Bombay (1 case), and Surabaya (1 case).

At Guayaquil, Ecuador, 4 cases of plague were reported in September. In Peru, 45 cases were reported in September as against 21 cases in the preceding month.

Yellow fever.—Cases of yellow fever were reported as follows in the month preceding the publication of the November issue of the Epidemiological Report:

TABLE 4.—*Cases of yellow fever reported since preceding issue of the Epidemiological Report*

Locality	Date	Cases	Deaths
Africa.			
Gold Coast	Aug. 1-31	7	2
Upper Volta—			
Gaoua District	Oct. 25	2	
Senegal.			
Birkelane	do	2	
Kaolak District	Oct. 28	2	
	Nov. 8	1	1
	Nov. 13	1	1
Kaffrine	Nov. 3-5	1	1
Nioro Rip	Nov. 4	1	1
Sedhiou	Nov. 10	1	
Tamba Counda	do	1	1
French Sudan:			
Bamako	Nov. 1	1	
Segou	Oct. 31-Nov. 4	2	2

Relapsing fever.—The Report gives the following account of relapsing fever in western Africa: "The epidemic of relapsing fever which, since 1921, has been progressing from west to east through the more or less arid zone south of the North-African desert belt, decimating the population on its way, is reported to have made a new eastward extension. A serious outbreak occurred in Darfur, the westernmost Province of Anglo-Egyptian Sudan, in September and October. The outbreak is reported to extend over an area of about 20,000 square miles, but details are not as yet available. The epidemic reached the Chad Territory early in 1925, and an outbreak with a high mortality occurred in March, 1926, in Wadai, which is the easternmost of the French possessions and borders on Darfur. It is reported that the epidemic reappeared in September in Wadai, especially at Abeshr."

Dysentery.—On the whole, the autumn of 1926 is reported to have been favorable in regard to the prevalence of dysentery in Europe. The incidence reported in Russia for August was less than half of that in August, 1925, but a slight increase occurred in Ukraine. Poland showed an excess of cases in August, September, and October over the corresponding months of 1925, but the 1925 incidence in Poland was unusually favorable. The seasonal maximum during the past autumn occurred later than in 1925, in general. This was particularly true in Germany, where the maximum occurred in the week ended October 2.

TABLE 5.—*Cases of dysentery in various European countries in the summer and autumn of 1925 and 1926*

4 weeks ending—	Germany		Poland		Italy	
	1925	1926	1925	1926	1925	1926
June 19	369	264	176	99	33	39
July 17	512	240	377	275	176	53
Aug. 14	903	503	801	1,261	246	143
Sept. 13	1,229	803	998	1,323	217	198
Oct. 9	406	923	335	870	111	--------

Month	Czechoslovakia		Hungary		Rumania		Serbs, Croats, and Slovenes	
	1925	1926	1925	1926	1925	1926	1925	1926
June	106	30	124	94	52	43	77	51
July	127	52	221	145	256	119	223	166
August	145	206	403	426	310	210	301	236
September	128	138	407	407	178	211	307	264
October	38	215	206	--------	65	166	195	206

Smallpox.—"The incidence of smallpox increased in October in northern England; 510 cases were reported during the four weeks ended October 30 as against 242 cases during the corresponding period of the preceding year," states the Report. In the first week of November, 302 cases were reported, most of which were in Durham, though small outbreaks occurred in Yorkshire, Derbyshire, and Northumberland.

An outbreak of malignant smallpox appeared at Paris early in September. During October, 44 cases and 16 deaths were reported in the city and 14 cases in the suburbs.

A virulent type of smallpox became prevalent in Rio de Janeiro in August, 1925. In July, 1926, the incidence of the disease increased sharply and the epidemic seemed to reach its maximum in the latter half of August. From January 1 to September 18, 1926, 3,101 cases and 1,598 deaths were reported.

Enteric fever.—During August the incidence of enteric fever in European countries was lower than in the preceding year, but in September and October the situation was less favorable. The seasonal maximum came later in 1926 than in 1925, as was true also of dysentery.

A severe outbreak of typhoid fever occurred at Hanover in Germany, causing about 2,500 cases and 260 deaths from the beginning of the outbreak in August to its practical close at the end of October. A special study of the outbreak is published in the November issue of the Epidemiological Report. Elsewhere in Germany there was no unusual prevalence of this disease.

Influenza.—At the time this report was published, a considerable increase in influenza deaths had occurred in the large towns of England and Wales, but no unusual prevalence of the disease was

noted in the reports from other countries. In the towns in England and Wales the deaths from influenza during the four weeks ending November 13 numbered 313, which was more than had been reported for the corresponding period of the preceding seven years.

Acute poliomyelitis.—Outbreaks of poliomyelitis occurred in Germany in August and September, but the incidence diminished in October. The case fatality averaged 9 per cent. In England the incidence was about the same in October as in September.

TABLE 6.—*Cases of acute poliomyelitis reported in England and Wales, Germany, and the United States from July to October, 1926*

Two weeks ending—	England and Wales	Germany	United States
July 17	13	32	85
July 31	41	56	108
Aug. 4	57	104	151
Aug. 28	87	155	229
Sept. 11	94	299	263
Sept. 25	126	221	235
Oct. 9	111	198	179
Oct. 23	130	127	166
Nov. 6	114		

Scarlet fever.—The October reports indicated that scarlet fever was epidemic only in Poland, northern Germany, and the Netherlands. The incidence was lower than in 1925 in England and the Scandinavian countries, and about the same in Belgium and France. The disease was slightly more prevalent in Austria and in Hungary than in 1925, but slightly less so in Czechoslovakia and Rumania, and its incidence was much lower in the Kingdom of the Serbs, Croats, and Slovenes.

The epidemic in Poland seemed to have reached its maximum in the second half of September, but the incidence in Germany was still increasing slightly at the middle of October. It is not likely to increase much further, according to the report.

TABLE 7.—*Scarlet fever cases reported in Poland, Germany, and the Netherlands, from July to October, 1926*

Three weeks ending—	Poland		Germany		Netherlands	
	1925	1926	1925	1926	1925	1926
July 31	1,168	1,663	1,992	2,146	599	699
Aug. 21	1,076	2,142	2,052	2,573	618	684
Sept. 11	1,436	2,421	2,383	3,389	747	782
Oct. 2	1,797	3,867	2,991	4,339	946	1,131
Oct. 23	1,957	3,676	2,744	4,561	1,111	1,300

The reported case fatality in Poland averaged 8.4 per cent, and in Germany 0.63 per cent. Some of the difference undoubtedly is due to better reporting of cases in Germany, but it is known that in most of Eastern Europe scarlet fever is more severe than in Central or Western Europe.

WHY PARENTS SHOULD HAVE THEIR CHILDREN PROTECTED AGAINST DIPHTHERIA BY TOXIN-ANTITOXIN

The New York State Department of Health is conducting an energetic campaign to protect permanently all children in that State against diphtheria. As a part of its public health educational program a leaflet has been recently issued by Dr. Matthias Nicoll, jr., commissioner of health of the New York State Department of Health, which is furnished to physicians for display on their waiting-room table. The pamphlet is entitled "Why Parents Should Have Their Children Protected Against Diphtheria by Toxin-Antitoxin," and reads as follows:

"Many parents do not worry much about diphtheria. They have read or heard about the treatment of the disease with antitoxin. They feel that with such a wonderful remedy there is little to fear.

"It is true that antitoxin is a wonderful remedy for diphtheria. A few years ago, however, a method of prevention was discovered, which possibly is even more remarkable than the remedy. It was found that a child can be protected against diphtheria, probably for life, by injecting under the skin a substance known as toxin-antitoxin, commonly called 'T–A.' T–A causes the body to form its own antitoxin, so that after several months there is enough of it to successfully overcome the toxin or poison of the diphtheria germ. Furthermore, there is ground for belief that once the body has formed its own antitoxin, it will continue to do so throughout life.

"There are several reasons why it is better to prevent diphtheria than to depend merely upon proper treatment:

"(1) Antitoxin may be administered too late and in insufficient quantity to save life. Evidence of diphtheria may be so slight that a physician is not called early enough.

"(2) One form of diphtheria (laryngeal) attacks the larynx or windpipe and may cause croup but no sore throat. The child may choke to death before medical attendance can be had.

"(3) Another form, nasal diphtheria, attacks the lining of the nose, and may be regarded as a common cold until it is too late.

"(4) A person who has diphtheria must undergo a period of illness and may suffer from bad after effects, especially heart disease.

"(5) Other members of the family must usually suffer inconvenience from quarantine regulations.

"THE USE OF T–A

"Hundreds of thousands of children have already been treated with T–A. It has proved itself safe. It is very, very seldom, indeed, that children under 10 notice any after effects at all, while among those under 5 such effects are almost unheard of.

"Only three injections a week apart are usually necessary. The protection given by these injections develops slowly. It may take a few months before it is complete.

"The Schick test is used only for the purpose of finding out whether or not a person is protected against diphtheria. It gives no protection; and since experience has shown that the vast majority of children are not protected naturally, its general use is being abandoned.

"The best time to have children protected by T–A is at the age of 6 months. Before this age the baby usually has some immunity which has been handed down by its mother.

"Where the use of T–A has been systematically promoted diphtheria has steadily decreased. Many children's institutions have been entirely freed from the disease.

"In Auburn, N. Y., population approximately 35,000, where intensive work has been carried on under the direction of the State department of health, diphtheria has been practically eliminated. In that city there had been an average of nine deaths a year during the eight years 1915–1922. In March of the latter year an aggressive campaign for immunization by T–A was begun. Now that sufficient time has elapsed for most of those who have been injected to form their own antitoxin, the results of this campaign leave no doubt that diphtheria can be completely wiped out of any community. Since January, 1923—10 months after the first children were injected—there have been but four deaths from diphtheria—three in 1923 and one on March 9, 1924.

"*Between the latter date and September 25, 1926, when this leaflet went to press, there has not been a single death from diphtheria in Auburn.*

"See your physician about T–A injections for your child. He can obtain T–A free from the State Department of Health."

DON'T TAKE CHANCES NOW!

YOU MAY SAVE YOUR CHILD'S LIFE

BY HAVING TOXIN-ANTI-TOXIN USED

NOW

THE STORY OF A "COMMON COLD"

Health Commissioner William H. Peters, of Cincinnati, Ohio, recently contributed to the public press a valuable health message prepared in the form of a short story. This story is quoted by the Ohio Health News for January 15, 1927, giving credit to the Cincin-

nati Times-Star. Doctor Peters's health message shows why it is so difficult to prevent the spread of the minor respiratory diseases. The story follows:

Willie's Cold

"Willie, Willie! Come right into the house. Don't you know you've got a bad cold? Bring the children in here where it's warm.

"Oh, Mrs. Jones, so glad to see you! The house looks dreadful, but do come in. All the children in the neighborhood are playing here to-day. Willie has a bad cold and I wouldn't let him stay out. He's sneezing all the time. I'll be glad when Monday comes and he can go back to school. Willie, shake hands with Mrs. Jones.

"Willie, did you lose your handkerchief again? Go let Annie wipe your nose with hers.

"Willie, there's the doorbell again. It's Mrs. Smith and her baby. You let them in and talk to them till I get dressed. Kiss the baby nicely.

"Hello! Hello! Yes, I can hear you, Daddy. You want to bring Mr. Black home to dinner. Yes, indeed. Come early so he can have a romp with Willie. I can manage. But don't forget that medicine for Willie's cold. His nose is running awfully to-night. Good-by.

"Don't play in that cold water, Willie, when you have such a cold. Now, go wipe your hands on the kitchen towel.

"Willie, let Howard Green blow that whistle just once if he wants to. You've played with it all afternoon.

"Willie, don't put those cards in your mouth. You'll get them dirty. Those are for auntie's card club to-night. You mustn't spoil them.

"Yes, Mrs. Green, Willie's gone back to school again. His ears are still aching some, but the doctor thinks that the drums won't burst. Pretty bad, though. Everyone of us has been sick, but Willie was the worst. How's Harold's cold? Did you hear about poor Mrs. Smith? Her children all have dreadful colds, and the baby almost died of pneumonia. She was here the first day Willie was sick, with the baby, and not a thing on its head! My house was nice and warm, and I told her when she went out to cover up the baby's head, but you can't teach some people. Willie just loves the baby. It was too cute the way he hugged and kissed her that day.

"Did you hear what the woman who's just moved in next door said? I've been so mad ever since I can scarcely look at her house. She had the impudence to say the reason her precious boy had a cold was that he came over and caught it from Willie. I'll see that they don't play together again, I can tell you. I know well enough where he got his cold. Didn't I hear her say that she made him take a bath every day? In this cold weather, too! Next she'll be saying Mrs. Smith's baby caught her pneumonia from Willie."

PUBLIC HEALTH ENGINEERING ABSTRACTS

Treatment of Algae and Weeds in Lakes at Madison. Bernard P. Domogalla, city biochemist, Madison, Wis. *Engineering News Record*, vol. 97, No. 24, December 9, 1926, pp. 950–954. (Abstract by H. R. Crohurst.)

The article describes the lakes in the vicinity of Madison, Wis., and the obnoxious conditions from the growth of algae and weeds. Methods of collecting samples of the water for examinations are described and types of plankton present indicated. Methods of applying copper sulphate, spraying arsenical compounds, and weed cutting are given. Important points brought out during the study include the following: (1) The copper sulphate dragging method is preferable for the type of algae that does not rise to the surface of the water and where the lake is well stirred by wind; from 1 to 2 pounds of copper sulphate per million gallons are effective in practically eliminating these forms. (2) The spraying method is more effective where the algae come to the surface and for very shallow water where a boat would stir up the bottom mud and débris. (3) Weeds growing in large bodies of open water may be kept under control by a weed-cutting machine. (4) In shallow places and along shore lines, weeds may best be removed, both the roots and the foliage, by means of steel cables with clips and swivels attached to them. (5) Arsenical compounds have been found to destroy a variety of water weeds. (6) Soluble phosphorus, the different forms of nitrogen, and the type of bacterial flora living in the waters are the growth-promoting factors for the algae and weeds.

Typhoid Patient Wins Suit Against City of Albany, N. Y. Anon. *The American City*, vol. 35, No. 6, December, 1926, p. 848. (Abstract by Charles R. Cox.)

A suit brought by John Weisner against the city of Albany in behalf of one of his sons who is said to have contracted typhoid fever from drinking polluted city water in the spring of 1924, and to have suffered permanent injury to his health thereby, was decided in favor of the plaintiff in the supreme court at Albany on October 26 by a jury which awarded damages in the sum of $3,000, $2,000 of which is given to the son and $1,000 to the father. This was a second trial of the action, the first, brought last spring, having resulted in a disagreement. Counsel for the city announced that an appeal would probably be taken to the court of appeals if necessary.

Counsel for the plaintiff based the case on the theory that the city contracts with each citizen to furnish water free from pollution, and that the city was negligent in failing to give timely and sufficient warning to the people of such pollution.

Of approximately 200 cases of typhoid fever which occurred at about the same time, 13 filed notice of suit within the required period and now have right of action.

(Abstractor's note: The number of cases of typhoid fever noted is erroneous, as there were about 100 cases in May and 50 throughout the remainder of the year.)

The Interrelation of the Problems of Water Purification and Sewage Treatment in Ohio. Howell Wright. Sixth Ohio Conference on Water Purification, Toledo, Ohio, October 21, 1926. (Abstract by H. W. Streeter.)

The author gives an excellent summary of the situation at Cleveland resulting from the proximity of the water intakes and sewer outfalls and from the technical and administrative difficulties which have arisen from this situation. The technical difficulties, he states, have resulted from the general tendency to develop sewage treatment primarily for nuisance prevention rather than for water-supply protection. The administrative difficulties have been due to a division of the financing of sewage disposal between two separate funds, the construction of works being paid out of tax levy funds and their operation out of public utility funds.

Although Cleveland now has the best water supply in its history, owing to the filtration of all of the supply (since October, 1925), "the sewage, trades wastes, and surface wash from the metropolitan area are sources of pollution of Lake Erie opposite the city and its suburbs" and "the only source for a public water supply for Cleveland and its suburbs is Lake Erie." The questions to be solved are stated as follows: "(1) How contaminated have the waters of the lake opposite the city become? (2) How great is the pollution of our intake waters when measured by accepted standards for drinking waters? (3) How much increase in the pollution by the raw intake waters is possible before present water purification processes become inadequate? (4) How does sewage treatment conserve the purity of the water supply?"

The author undertakes to answer each question in turn. From a consideration of these questions, he concludes—(*a*) That there has been a significant increase in the bacterial pollution of the lake waters coincidently with an increase in population of the city; (*b*) that the present water purification plant is overburdened at times; (*c*) that partial treatment of the sewage, as at present practiced, is inadequate for the proper protection of the water supply; and (*d*) that Cleveland should provide, at an early date, the most modern and complete sewage purification practicable "to protect its water supply from its raw pollution."

(Abstractor's note: In a report dated March, 1926, prepared by the Municipal Research Bureau of Cleveland and entitled, "A Report upon the Correlation of Water Purification and Sewage Disposal in Cleveland," issue appears to be taken with some of Mr. Wright's conclusions as to the immediate need for more complete treatment of Cleveland's sewage for the protection of its water supply.)

Sewage Disposal in San Fernando, Calif. Paul A. Diehl, *Western Construction News*, vol. 1, No. 22, November 25, 1926, pp. 39–42. (Abstract by L. D. Mars.)

San Fernando is a town of 7,000 people situated in Los Angeles County, Calif. The chief item of interest in the construction of this plant was the temporary nature of the installation. The town is within the limits of the new sanitary district of Los Angeles and within five years the outfall sewer will be extended to San Fernando and the sewage plant abandoned.

The type of plant chosen was Imhoff tanks and sprinkling filters. The Imhoff tank has four flowing-through channels. The detention period at maximum rate of flow is 48 minutes. The gas-vent area is 28 per cent of the total tank area. The sludge capacity is 2 cubic feet per capita, and the total depth of tank is 30 feet. The sludge-drying beds have an area of 5,000 square feet, or one-half square foot per capita. The sprinkling filter is 25,600 square feet in area and has an average depth of 5½ feet. This gives about 14 cubic feet of filter rock per capita. Due to the temporary nature of the plant, the filter bottom was constructed without concrete walls or floor upon a bed of natural gravel.

AUTOMOBILE FATALITIES IN 78 LARGE CITIES, APRIL 26, 1925–JANUARY 1, 1927, BY FOUR-WEEK PERIODS

The Department of Commerce announces that, during the four weeks ended January 1, 1927, automobile accidents were responsible for 521 deaths in 78 large cities of the United States, as compared with 551 deaths from the same cause during the four weeks ended January 2, 1926.

Below is shown the number of automobile fatalities in 78 large cities, by four-week periods, from April 26, 1925, to January 1, 1927. The lowest number of fatalities (350) is for the four weeks ended March 27, 1926, and the highest (676) is for the four-week period ended November 6, 1926.

Four weeks ended—

1927		**1926**	
Jan. 1	521	Feb. 27	378
1926		Jan. 2	551
Dec. 4	634	**1925**	
Nov. 6	676	Dec. 5	625
Oct. 9	656	Nov. 7	612
Sept. 11	560	Oct. 10	529
Aug. 14	497	Sept. 12	531
July 17	484	Aug. 15	469
June 19	549	July 18	495
May 22	487	June 20	492
Apr. 24	424	May 23	424
Mar. 27	350		

POPULATION OF HOSPITALS FOR THE CARE OF THE INSANE

Data for May and June, 1926

Reports for the month of May were received from 110 institutions for the care and treatment of the insane located in 29 States. The reports for June, 1926, included 136 institutions, in 32 States.

MAY, 1926

The average number of patients during the month of May in the institutions which reported for that month was 151,664. The increase during May was 0.3 per cent. The number of patients in the hospitals decreased 0.01 per cent and the number of patients on parole increased 4.0 per cent.

At the end of the month 8.1 per cent of the patients were on parole, but 9,351 patients were in hospitals which did not report any patients as paroled. Omitting these, 8.6 per cent of the patients were paroled on May 31.

There were 940 female patients per 1,000 male patients. In institutions caring for both sexes, there were 957 females per 1,000 males.

"First admissions" constituted 71.7 per cent of the total admitted; 14.7 per cent were readmissions, 13.5 per cent transfers from other hospitals, and 0.05 per cent of the admissions were not accounted for.

The condition of the patients discharged was reported to be as follows: Recovered, 29.9 per cent; improved, 45.0 per cent; unimproved, 15.8 per cent; without psychosis, 5.5 per cent; otherwise discharged and not accounted for, 3.8 per cent.

The death rate for the month was 94.95 per thousand per annum.

JUNE, 1926

The average number of patients during June in hospitals which reported for that month was 190,353. There was a decrease during the month of 0.09 per cent, but the number of patients in hospitals increased 0.4 per cent, while the number on parole decreased 6.3 per cent. More than two-thirds of this decrease occurred in eight hospitals in Ohio, which showed a decrease of 595 patients on parole, an increase of 157 in hospitals, and a decrease in total patients of 438. These eight hospitals reported 333 patients discharged during the month as recovered and 279 as improved.

On June 30, 7 per cent of the total number of patients were absent from the hospitals on parole. The patients in hospitals carrying patients on parole numbered 177,844 on June 30. Of these, 7.5 per cent were paroled on that date.

There were, in the aggregate, 919 female patients per thousand males. In hospitals caring for both sexes, the ratio was 935 females per thousand males.

Three-quarters of the admissions were recorded as "first admissions" (75.4 per cent); 14.8 per cent were readmissions, 9.6 per cent transfers from other institutions, and 0.2 per cent were not accounted for.

Thirty-six per cent of the patients discharged were recorded as recovered, 45.4 per cent as improved, 11 per cent as unimproved, 4.6 per cent as without psychosis, and 3 per cent as otherwise discharged or not accounted for.

The annual death rate for the month of June for the hospitals reporting was 92.7 per thousand patients.

	May, 1926	June, 1926
Number of public institutions included	87	113
Number of private institutions included	23	23
Total	110	136
Patients on books first day of month:		
In hospitals	139, 604	176, 266
On parole or otherwise absent but still on books	11, 831	14, 172
Total	151, 435	190, 438
Admitted during month:		
First admissions	2, 703	3, 630
Readmissions	556	712
Admitted by transfer	509	461
Not accounted for	2	11
Total received during month	3, 770	4, 814
Total on books during month	155, 205	195. 252
Discharged during month:		
As recovered	462	1, 102
As improved	695	1, 391
As unimproved	244	337
As without psychosis	85	141
Otherwise discharged	59	91
Not accounted for	1	2
Total discharged during month	1, 546	3, 064
Transferred	542	469
Died	1, 223	1, 450
Total discharged, transferred, and died during month	3, 311	4, 983
Patients on books last day of month:		
In hospitals	139, 589	176, 984
On parole or otherwise absent, but still on books	12, 305	13, 285
Total	151, 894	190, 269
Male patients	78, 314	99, 143
Female patients	73, 580	91, 126

DEATHS DURING WEEK ENDED JANUARY 22, 1927

Summary of information received by telegraph from industrial insurance companies for week ended January 22, 1927, and corresponding week of 1926. (From the Weekly Health Index January 26, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 22, 1927	Corresponding week, 1926
Policies in force	66, 588, 121	62. 860, 526
Number of death claims	13, 298	13, 869
Death claims per 1,000 policies in force, annual rate	10. 4	11. 5

Deaths from all causes in certain large cities of the United States during the week ended January 22, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, January 26, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 22, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Jan. 22, 1927 [2]
	Total deaths	Death rate [1]		Week ended Jan. 22, 1927	Corresponding week 1926	
Total (68 cities)	7,946	14.0	14.7	859	904	[3] 72
Akron	40	----------	----------	9	10	97
Albany [4]	34	14.8	23.7	7	6	116
Atlanta	87	----------	----------	11	18	----------
White	56	----------	----------	5	8	----------
Colored	31	(5)	----------	6	10	[illegible]
Baltimore [4]	275	17.5	18.3	37	29	[illegible]
White	211	----------	17.3	25	19	[illegible]
Colored	64	(5)	23.7	12	10	[illegible]
Birmingham	65	15.8	18.0	15	13	----------
White	26	----------	15.9	4	8	----------
Colored	39	(5)	21.4	11	5	----------
Boston	245	16.1	15.7	32	18	89
Bridgeport	35	----------	----------	3	9	56
Buffalo	169	16.0	15.3	19	18	80
Cambridge	27	11.4	12.4	2	1	36
Camden	25	9.8	15.5	5	7	86
Canton	27	12.5	12.3	5	4	118
Chicago [4]	767	12.9	11.9	90	78	78
Cincinnati	148	18.7	17.4	10	7	62
Cleveland	198	10.5	10.1	19	25	50
Columbus	94	16.8	16.1	6	9	56
Dallas	43	10.7	15.7	6	7	----------
White	34	----------	12.4	4	6	----------
Colored	9	(5)	36.7	2	1	----------
Dayton	56	16.2	9.4	4	5	66
Denver	89	16.0	12.1	9	10	----------
Des Moines	37	12.9	14.3	0	3	0
Detroit	282	11.0	14.1	56	72	88
Duluth	18	8.2	9.2	0	4	0
El Paso	30	13.7	15.8	6	4	----------
Erie	20	----------	----------	4	4	78
Fall River [4]	18	7.1	14.7	5	6	88
Flint	20	7.3	6.5	3	4	49
Fort Worth	23	7.3	9.2	0	2	----------
White	19	----------	8.2	0	2	----------
Colored	4	(5)	16.5	0	0	----------
Grand Rapids	44	14.4	11.7	3	4	41
Houston	59	----------	----------	8	7	----------
White	43	----------	----------	5	4	----------
Colored	16	(5)	----------	3	3	----------
Indianapolis	107	14.9	14.5	12	7	94
White	92	----------	13.9	12	4	108
Colored	15	(5)	19.0	0	3	0
Jersey City	59	9.6	14.8	4	12	[illegible]
Kansas City, Kans	10	8.5	11.1	3	1	58
White	14	----------	8.1	3	1	67
Colored	5	(5)	25.4	0	0	0
Kansas City, Mo	98	13.3	13.1	7	9	----------
Los Angeles	258	----------	----------	23	25	60
Louisville	99	16.1	15.4	10	7	85
White	72	----------	15.0	7	6	68
Colored	27	(5)	17.8	3	1	210
Lowell	24	11.3	16.5	4	5	77
Lynn	22	10.9	14.0	1	2	26
Memphis	75	21.8	20.6	8	12	----------
White	36	----------	17.8	3	7	----------
Colored	39	(5)	25.7	5	5	----------
Milwaukee	113	11.2	11.8	21	21	17
Minneapolis	103	12.2	12.3	3	10	98
Nashville [4]	59	22.3	24.0	3	5	----------
White	38	----------	20.8	2	3	----------
Colored	21	(5)	32.1	1	2	----------

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 64 cities.
[4] Deaths for week ended Friday, January 21, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended January 22, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Jan. 22, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Jan. 22, 1927
	Total deaths	Death rate		Week ended Jan. 22, 1927	Corresponding week 1926	
New Bedford	35	15.3	14.4	6	5	104
New Haven	46	13.0	13.8	2	0	28
New Orleans	189	23.2	22.5	19	15	
White	118		19.8	5	10	
Colored	71	(5)	30.1	14	5	
New York	1,612	11.1	14.9	136	174	56
Bronx Borough	191	10.8	12.0	7	11	22
Brooklyn Borough	519	11.9	13.7	55	65	57
Manhattan Borough	703	20.2	19.7	55	77	65
Queens Borough	156	10.1	10.0	14	17	60
Richmond Borough	43	15.3	13.5	5	3	93
Newark, N. J.	103	11.5	13.4	9	16	45
Norfolk	40	11.7	11.7	7	1	141
White	18		10.8	3	1	93
Colored	22	(5)	13.2	4	0	212
Oakland	62	12.1	14.6	6	8	70
Oklahoma City	33			4	1	
Omaha	43	10.2	15.0	1	7	11
Paterson	41	14.8	11.3	2	2	35
Philadelphia	612	15.7	15.7	73	69	97
Pittsburgh	228	18.5	14.4	31	19	108
Portland, Oreg.	67			6	4	63
Providence	74	13.7	11.9	10	3	85
Richmond	65	17.7	20.7	10	12	172
White	38		13.2	4	1	81
Colored	27	(5)	38.9	6	11	228
Rochester	70	11.3	16.7	10	9	84
St. Louis	215	13.4	15.6	20	24	
St. Paul	50	10.4	9.0	5	2	45
Salt Lake City [4]	33	12.7	16.5	4	5	61
San Antonio	60	14.8	19.6	9	13	
San Diego	48	21.8	19.4	2	1	43
San Francisco	174	15.8	20.8	15	9	93
Schenectady	28	15.7	16.3	1	2	30
Seattle	67			3	3	31
Somerville	23	11.8	13.6	2	3	72
Spokane	19	9.1	15.8	4	2	139
Springfield, Mass.	33	11.7	10.8	3	1	46
Syracuse	48	12.7	13.2	5	4	64
Tacoma	25	12.2	10.8	0	2	0
Toledo	85	14.6	15.4	10	10	96
Trenton	39	14.8	21.0	7	11	122
Utica	21	10.6	15.7	0	6	0
Washington, D. C.	179	17.3	17.9	15	17	87
White	126		17.3	8	10	68
Colored	53	(5)	19.5	7	7	129
Waterbury	26			3	4	71
Wilmington, Del.	31	12.8	15.1	5	8	124
Worcester	44	11.8	15.9	2	7	24
Yonkers	26	11.4	16.2	5	4	114
Youngstown	33	10.2	10.1	8	6	112

[4] Deaths for week ended Friday, Jan. 21, 1927.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 71, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended January 29, 1927

ALABAMA

	Cases
Chicken pox	77
Diphtheria	37
Influenza	91
Lethargic encephalitis	1
Malaria	7
Measles	79
Mumps	17
Ophthalmia neonatorum	2
Pellagra	6
Pneumonia	106
Scarlet fever	34
Smallpox	97
Tuberculosis	110
Typhoid fever	10
Typhus fever	4
Whooping cough	19

ARIZONA

Chicken pox	9
Diphtheria	1
Influenza	2
Measles	16
Pneumonia	1
Scarlet fever	6
Tuberculosis	26

ARKANSAS

Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	12
Influenza	100
Malaria	11
Mumps	9
Pellagra	7
Scarlet fever	7
Smallpox	3
Tuberculosis	6
Typhoid fever	7
Whooping cough	44

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Los Angeles	1
Pasadena	1
Sacramento	1
San Diego	1
Torrance	1
Tuolumne County	1
Yolo County	1
Chicken pox	579
Diphtheria	148
Influenza	44
Jaundice	2
Lethargic encephalitis—San Luis Obispo	1
Measles	1,731
Mumps	197
Poliomyelitis:	
Kings County	1
Los Angeles	1
San Diego	1
San Jose	1
Stockton	1
Scarlet fever	284
Smallpox	23
Tuberculosis	176
Typhoid fever	10
Whooping cough	84

COLORADO

Cerebrospinal meningitis	1
Chicken pox	13
Diphtheria	2
German measles	1
Influenza	1
Measles	76
Mumps	8
Pneumonia	6
Poliomyelitis	1
Scabies	1
Scarlet fever	97

COLORADO—continued

	Cases
Septic sore throat	1
Smallpox	24
Tuberculosis	2
Typhoid fever	2
Whooping cough	5

CONNECTICUT

Chicken pox	113
Diphtheria	29
German measles	4
Influenza	31
Lethargic encephalitis	1
Measles	48
Mumps	32
Paratyphoid fever	1
Pneumonia (broncho)	26
Pneumonia (lobar)	52
Poliomyelitis	1
Scarlet fever	104
Septic sore throat	3
Tuberculosis (all forms)	36
Typhoid fever	6
Whooping cough	61

DELAWARE

Cerebrospinal meningitis	1
Chicken pox	5
Diphtheria	4
Influenza	1
Measles	2
Pneumonia	7
Scarlet fever	44
Tuberculosis	3
Whooping cough	6

FLORIDA

Chicken pox	43
Dengue	1
Diphtheria	56
Dysentery	11
Influenza	45
Lethargic encephalitis	1
Malaria	25
Measles	32
Mumps	5
Paratyphoid fever	1
Pellagra	1
Pneumonia	117
Poliomyelitis	2
Scarlet fever	25
Smallpox	59
Tetanus	18
Tuberculosis	98
Typhoid fever	27
Whooping cough	14

GEORGIA

Cerebrospinal meningitis	2
Chicken pox	29
Conjunctivitis (infectious)	1
Diphtheria	11
Dysentery	2
Hookworm disease	1
Influenza	159
Malaria	8

GEORGIA—continued

	Cases
Measles	107
Mumps	25
Pellagra	1
Pneumonia	52
Scarlet fever	29
Septic sore throat	4
Smallpox	106
Tuberculosis	11
Typhoid fever	6
Whooping cough	35

IDAHO

Chicken pox	4
Diphtheria	1
Measles	130
Mumps	2
Scarlet fever	15
Smallpox	5
Typhoid fever	1

ILLINOIS

Cerebrospinal meningitis—Cook County	3
Chicken pox	493
Diphtheria	114
Influenza	53
Lethargic encephalitis:	
Cook County	2
Rock Island County	1
Measles	1,575
Mumps	283
Pneumonia	352
Scarlet fever	365
Smallpox:	
Clay County	37
Scattering	20
Tuberculosis	241
Typhoid fever	3
Whooping cough	191

INDIANA

Cerebrospinal meningitis	1
Chicken pox	93
Diphtheria	52
Influenza	73
Measles	143
Mumps	1
Pneumonia	13
Scarlet fever	235
Smallpox	158
Tuberculosis	26
Typhoid fever	5
Whooping cough	31

IOWA

Chicken pox	81
Diphtheria	28
German measles	1
Measles	163
Mumps	11
Pneumonia	3
Scarlet fever	28
Smallpox	13
Tuberculosis	12
Whooping cough	10

KANSAS

	Cases
Chicken pox	193
Diphtheria	19
German measles	6
Influenza	9
Measles	262
Mumps	48
Pneumonia	41
Poliomyelitis—Dickinson County	1
Scarlet fever	201
Smallpox:	
Topeka	20
Scattering	39
Tetanus	1
Tuberculosis	21
Typhoid fever	2
Whooping cough	42

LOUISIANA

	Cases
Cerebrospinal meningitis	2
Diphtheria	17
Influenza	53
Malaria	11
Measles	88
Ophthalmia neonatorum	2
Paratyphoid fever	1
Pneumonia	36
Scarlet fever	20
Smallpox	7
Tuberculosis	40
Typhoid fever	14
Whooping cough	8

MAINE

	Cases
Chicken pox	71
Diphtheria	2
Dysentery	1
German measles	24
Influenza	21
Measles	185
Mumps	9
Paratyphoid fever	1
Pneumonia	18
Scarlet fever	44
Tuberculosis	6
Typhoid fever	1
Vincent's angina	4
Whooping cough	85

MARYLAND[1]

	Cases
Chicken pox	192
Diphtheria	63
German measles	1
Impetigo contagiosa	1
Influenza	115
Lethargic encephalitis	2
Measles	26
Mumps	28
Ophthalmia neonatorum	1
Paratyphoid fever	1
Pneumonia (broncho)	47
Pneumonia (lobar)	78
Scarlet fever	96
Septic sore throat	7

[1] Week ended Friday.

MARYLAND—continued

	Cases
Smallpox	1
Tuberculosis	37
Typhoid fever	6
Whooping cough	118

MASSACHUSETTS

	Cases
Cerebrospinal meningitis	1
Chicken pox	417
Conjunctivitis (suppurative)	10
Diphtheria	108
German measles	12
Influenza	27
Lethargic encephalitis	2
Measles	170
Mumps	351
Ophthalmia neonatorum	22
Pellagra	1
Pneumonia (lobar)	110
Poliomyelitis	1
Scarlet fever	598
Septic sore throat	7
Tuberculosis (pulmonary)	97
Tuberculosis (other forms)	26
Typhoid fever	4
Whooping cough	191

MICHIGAN

	Cases
Diphtheria	135
Measles	136
Pneumonia	151
Scarlet fever	393
Smallpox	44
Tuberculosis	38
Typhoid fever	4
Whooping cough	189

MINNESOTA

	Cases
Cerebrospinal meningitis	6
Chicken pox	197
Diphtheria	41
Influenza	2
Measles	328
Pneumonia	6
Scarlet fever	284
Smallpox	6
Tuberculosis	71
Typhoid fever	2
Whooping cough	20

MISSISSIPPI

	Cases
Diphtheria	10
Scarlet fever	12
Smallpox	15
Typhoid fever	4

MISSOURI

(Exclusive of Kansas City)

	Cases
Chicken pox	72
Diphtheria	46
Influenza	9
Malaria	2
Measles	225
Mumps	43
Pneumonia	5

MISSOURI—continued

	Cases
Scarlet fever	127
Smallpox	12
Tetanus	1
Trachoma	1
Tuberculosis	49
Whooping cough	36

MONTANA

	Cases
Cerebrospinal meningitis	6
Chicken pox	15
Diphtheria	9
Measles	174
Mumps	22
Scarlet fever	143
Septic sore throat	1
Smallpox	1
Tuberculosis	9
Typhoid fever	2
Whooping cough	2

NEBRASKA

	Cases
Cerebrospinal meningitis	1
Chicken pox	51
Diphtheria	10
German measles	2
Influenza	27
Measles	151
Mumps	30
Pneumonia	8
Scarlet fever	90
Septic sore throat	6
Smallpox	21
Tuberculosis	2
Whooping cough	12

NEW JERSEY

	Cases
Anthrax	2
Cerebrospinal meningitis	3
Chicken pox	379
Diphtheria	115
Dysentery	1
Influenza	40
Measles	28
Pneumonia	174
Rabies	1
Scarlet fever	387
Typhoid fever	1
Whooping cough	234

NEW MEXICO

	Cases
Chicken pox	45
Conjunctivitis	6
Diphtheria	2
German measles	5
Influenza	8
Measles	22
Mumps	6
Pneumonia	11
Scarlet fever	38
Tuberculosis	22
Whooping cough	4

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	2
Chicken pox	418
Diphtheria	111

[1] Deaths.

NEW YORK—continued

	Cases
Dysentery	1
German measles	107
Lethargic encephalitis	3
Measles	717
Mumps	270
Pneumonia	359
Scarlet fever	283
Septic sore throat	7
Smallpox	10
Trachoma	5
Typhoid fever	12
Vincent's angina	8
Whooping cough	281

NORTH CAROLINA

	Cases
Chicken pox	317
Diphtheria	41
German measles	14
Measles	162
Poliomyelitis	2
Scarlet fever	65
Septic sore throat	2
Smallpox	47
Typhoid fever	2
Whooping cough	564

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Chicken pox	42
Diphtheria	27
Influenza	297
Measles	94
Pneumonia	118
Poliomyelitis:	
Blaine County	1
Lincoln County	1
Scarlet fever	48
Smallpox	25
Whooping cough	10

OREGON

	Cases
Chicken pox	78
Diphtheria	10
Influenza	111
Lethargic encephalitis	1
Measles	75
Mumps	26
Pneumonia	[1] 10
Scarlet fever	52
Septic sore throat	4
Smallpox:	
Douglas County	14
Klamath County	24
Scattering	14
Tuberculosis	[1] 4
Typhoid fever	5
Whooping cough	5

PENNSYLVANIA

(Exclusive of Philadelphia)

	Cases
Cerebrospinal meningitis:	
Lancaster	1
Scranton	1
Chicken pox	695
Diphtheria	161
German measles	39

PENNSYLVANIA—continued

	Cases
etigo contagiosa	2
ısles	779
mps	183
ıthalmia neonatorum—Greene County	1
:umonia	158
iomyelitis—Chambersburg	1
bies	4
ırlet fever	452
ıchoma	2
berculosis	126
phoid fever	14
ıooping cough	269

RHODE ISLAND

ıicken pox	15
›njunctivitis	1
phtheria	7
›rman measles	1
easles	1
›hthalmia neonatorum	1
ıeumonia	3
arlet fever	20
ıberculosis	11
yphoid fever	1
'hooping cough	9

SOUTH CAROLINA

hicken pox	92
›engue	5
›iphtheria	17
Iookworm disease	41
nfluenza	1,299
ıalaria	82
ıeasles	90
›ellagra	28
›oliomyelitis	4
›carlet fever	7
›mallpox	24
Tuberculosis	27
Typhoid fever	7
Whooping cough	97

SOUTH DAKOTA

Chicken pox	11
Measles	116
Mumps	14
Pneumonia	9
Scarlet fever	63
Smallpox	12
Whooping cough	13

TENNESSEE

Chicken pox	47
Diphtheria	15
Influenza	147
Lethargic encephalitis—Loudon County	1
Malaria	6
Measles	180
Pneumonia	66
Rabies	2
Scarlet fever	45
Smallpox	4
Trachoma	1
Tuberculosis	7
Typhoid fever	15
Whooping cough	56

TEXAS

	Cases
Cerebrospinal meningitis	1
Chicken pox	47
Diphtheria	51
Influenza	248
Measles	17
Mumps	23
Pneumonia	17
Scarlet fever	49
Smallpox	73
Trachoma	1
Tuberculosis	4
Typhoid fever	4
Whooping cough	36

UTAH

Chicken pox	25
Diphtheria	4
Influenza	2
Measles	270
Mumps	28
Pneumonia	11
Scarlet fever	15
Smallpox	1

VERMONT

Chicken pox	[illegible]
Diphtheria	[illegible]
Measles	[illegible]
Mumps	35
Scarlet fever	8
Whooping cough	46

VIRGINIA

Smallpox	10

WASHINGTON

Cerebrospinal meningitis	9
Chicken pox	117
Diphtheria	40
German measles	51
Measles	210
Mumps	56
Pneumonia	3
Scarlet fever	95
Smallpox	61
Tuberculosis	47
Typhoid fever	4
Whooping cough	19

WEST VIRGINIA

Cerebrospinal meningitis—Pocahontas County	1
Chicken pox	105
Diphtheria	20
Influenza	65
Measles	120
Scarlet fever	65
Smallpox	13
Tuberculosis	24
Typhoid fever	19
Whooping cough	111

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	6
Chicken pox	115

WISCONSIN—continued

Milwaukee—Continued	Cases
Diphtheria	32
German measles	3
Influenza	2
Measles	40
Mumps	50
Pneumonia	32
Poliomyelitis	1
Scarlet fever	40
Smallpox	1
Whooping cough	57
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	177
Diphtheria	9
German measles	26
Influenza	49
Measles	670
Mumps	156
Pneumonia	18

WISCONSIN—continued

Scattering—Continued	Cases
Poliomyelitis	2
Scarlet fever	158
Smallpox	16
Tuberculosis	21
Typhoid fever	2
Whooping cough	95

WYOMING

Cerebrospinal meningitis—Hot Springs County	4
Chicken pox	9
Diphtheria	7
German measles	42
Impetigo contagiosa	1
Measles	276
Mumps	3
Scarlet fever	38
Whooping cough	4

Reports for week ended January 22, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	64
Diphtheria	13
Influenza	1
Measles	4
Pneumonia	41
Scarlet fever	24
Smallpox	1
Tuberculosis	24
Whooping cough	4

NORTH DAKOTA

	Cases
Chicken pox	15
Diphtheria	6
Influenza	11
Measles	115
Pneumonia	10
Poliomyelitis	1
Scarlet fever	57
Smallpox	3
Tuberculosis	2
Typhoid fever	2
Whooping cough	4

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1926										
Idaho	1	32			194		0	250	11	6
December, 1926										
Alabama	3	268	146	80	45	16	5	93	184	103
Idaho	3	6	6		414		1	206	29	4
Illinois	14	519	135	11	2,930		5	1,265	51	115
Kansas	6	110	57	1	334	1	2	468	121	18
Mississippi	2	170	2,940		637	213	3	153	78	80
Missouri	1	261	82	1	556		0	502	8	33
Montana	6	26	35		563		1	454	83	17
North Carolina	2	393		2	265		0	277	267	28
Ohio	4	1,123	36		246		10	1,606	121	79
Oklahoma [1]	2	120	508	43	138	11	4	162	112	75
Oregon	4	100	128	1	175		1	276	137	11
Pennsylvania	4	989		3	2,818		3	2,290	0	165
Rhode Island	0	67	36		6		2	82	0	1
South Carolina	0	484	2,120	529	34	68	2	66	20	68
Wyoming	3	10			157		0	102	0	3

[1] Exclusive of Oklahoma City and Tulsa.

November, 1926

	Cases
Idaho:	
Chicken pox	84
Mumps	25
Trachoma	1
Whooping cough	44

December, 1926

Anthrax:	
Ohio	1
Pennsylvania	6
Botulism—Oregon	1
Chicken pox:	
Alabama	133
Idaho	80
Illinois	2,202
Kansas	764
Mississippi	641
Missouri	401
Montana	81
North Carolina	593
Ohio	2,440
Oklahoma	101
Oregon	167
Pennsylvania	3,683
Rhode Island	78
South Carolina	200
Wyoming	76
Dengue:	
Alabama	3
Mississippi	3
Dysentery:	
Illinois	24
Mississippi (amoebic)	28
Mississippi (bacillary)	176
German measles:	
Illinois	46
Kansas	5
Montana	1
North Carolina	11
Ohio	27
Pennsylvania	73
Rhode Island	4
Glanders—Missouri	2
Hookworm disease:	
Mississippi	357
South Carolina	80
Impetigo contagiosa:	
Oregon	12
Pennsylvania	55
Lead poisoning:	
Illinois	35
Ohio	18
Lethargic encephalitis:	
Alabama	1
Idaho	1
Illinois	8
Kansas	1
Ohio	2
Oregon	1
Pennsylvania	4
Mumps:	
Alabama	26
Idaho	11
Illinois	524
Kansas	43
Mississippi	265
Missouri	28
Montana	23

December, 1926—Continued

	Cases
Mumps—Continued.	
Ohio	301
Oklahoma	12
Oregon	55
Pennsylvania	553
Rhode Island	11
Wyoming	2
Ophthalmia neonatorum:	
Illinois	33
Kansas	1
Mississippi	14
Missouri	1
Ohio	86
Oklahoma	1
Pennsylvania	26
Rhode Island	1
Paratyphoid fever:	
Illinois	3
Kansas	1
South Carolina	2
Puerperal septicemia:	
Illinois	4
Mississippi	21
Oregon	1
Pennsylvania	1
Rabies in animals:	
Mississippi	11
Missouri	2
South Carolina	19
Rabies in man—Pennsylvania	1
Scabies:	
Oregon	7
Pennsylvania	45
Septic sore throat:	
Idaho	1
Illinois	8
Kansas	5
Missouri	22
North Carolina	4
Ohio	5
Oregon	8
Tetanus:	
Kansas	1
Montana	2
Trachoma:	
Illinois	7
Mississippi	4
Missouri	14
Oklahoma	5
Pennsylvania	3
Trichinosis—Oregon	1
Typhus fever—Alabama	10
Whooping cough:	
Alabama	79
Idaho	7
Illinois	838
Kansas	146
Mississippi	861
Missouri	161
Montana	15
North Carolina	1,137
Ohio	823
Oklahoma	67
Oregon	20
Pennsylvania	1,327
Rhode Island	37
South Carolina	166
Wyoming	43

RODENT PLAGUE AT LOS ANGELES, CALIF.

One Norway rat trapped in Los Angeles, Calif., on January 24, 1927, was proved positive for plague on January 29, 1927.

State Health Officer Walter M. Dickie states that the city department of health of Los Angeles has assigned 10 men for rodent-control work in the county territory adjacent to that part of the city where the plague-infected rat was reported found, the work being carried on under the direction of an inspector from the State board of health.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended January 15, 1927, 40 States reported 2,082 cases of diphtheria. For the week ended January 16, 1926, the same States reported 1,690 cases of this disease. One hundred cities, situated in all parts of the country and having an estimated aggregate population of more than 30,900,000, reported 1,110 cases of diphtheria for the week ended January 15, 1927. Last year for the corresponding week they reported 850 cases. The estimated expectancy for these cities was 1,166 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-seven States reported 8,381 cases of measles for the week ended January 15, 1927, and 11,041 cases of this disease for the week ended January 16, 1926. One hundred cities reported 1,954 cases of measles for the week this year, and 5,686 cases last year.

Poliomyelitis.—The health officers of 40 States reported 16 cases of poliomyelitis for the week ended January 15, 1927. The same States reported 15 cases for the week ended January 16, 1926.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty States—this year, 5,444 cases; last year, 4,306 cases; 100 cities—this year, 2,175 cases; last year, 1,668 cases; estimated expectancy, 1,277 cases.

Smallpox.—For the week ended January 15, 1927, 40 States reported 1,253 cases of smallpox. Last year for the corresponding week they reported 906 cases. One hundred cities reported smallpox for the week as follows: 1927, 133 cases; 1926, 272 cases; estimated expectancy, 111 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—Two hundred and seventy-three cases of typhoid fever were reported for the week ended January 15, 1927, by 40 States. For the corresponding week of 1926, the same States reported 287 cases of this disease. One hundred cities reported 56 cases of typhoid fever for the week this year and 63 cases for the corresponding week last year. The estimated expectancy for these cities was 52 cases.

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Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 93 cities, with an estimated population of more than 30,150,000, as follows: 1927, 1,161 deaths; 1926, 1,334 deaths.

City reports for week ended January 15, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	14	2	1	0	0	4	0	1
New Hampshire:									
Concord	22,546	0	0	0	1	1	29	0	0
Manchester	83,097	0	2	0	0	0	4	0	3
Vermont:									
Barre	10,008	2	0	0	0	0	22	0	0
Burlington	24,089	1	0	0	0	0	0	0	4
Massachusetts:									
Boston	779,620	98	65	25	1	0	23	72	42
Fall River	128,993	5	6	2	1	0	0	1	4
Springfield	142,065	24	4	10	1	1	0	1	2
Worcester	190,757	17	6	2	1	0	1	7	6
Rhode Island:									
Pawtucket	69,760	2	1	2	0	0	6	0	2
Providence	267,918	0	10	24	0	1	2	0	6
Connecticut:									
Bridgeport	(1)	0	9	4	5	2	2	2	7
Hartford	160,197	9	8	5	0	1	0	0	1
New Haven	178,927	20	3	0	0	0	1	0	13
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	44	16	16		2	3	7	13
New York	5,873,356	309	214	176	98	26	20	350	249
Rochester	316,786	10	13	14		0	5	0	4
Syracuse	182,003	28	7	5		0	7	6	7
New Jersey:									
Camden	128,642	4	5	35	1	0	1	0	4
Newark	452,513	17	22	11	8	0	4	38	15
Trenton	132,020	3	7	0	0	0	0	0	5
Pennsylvania:									
Philadelphia	1,979,364	197	83	86		8	3	65	79
Pittsburgh	631,563	54	21	14		4	33	0	39
Reading	112,707	25	5	1		0	2	14	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	27	10	8	0	3	1	40	13
Cleveland	936,485	181	34	65	1	2	8	5	25
Columbus	279,836	28	5	7	0	1	1	0	12
Toledo	287,380	109	11	8	3	3	18	10	8
Indiana:									
Fort Wayne	97,846	6	4	3	0	1	12	0	2
Indianapolis	358,819	67	13	14	0	0	2	2	14
South Bend	80,091	6	1	1	0	0	19	0	0
Terre Haute	71,071	5	2	4	0	0	[illegible]	[illegible]	[illegible]

[1] No estimate made.

City reports for week ended January 15, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Illinois:									
Chicago	2,995,239	158	115	92	48	10	385	71	95
Peoria	81,564	10	1	0	0	0	61	2	2
Springfield	63,923	8	1	1	0	0	76	0	1
Michigan:									
Detroit	1,245,824	166	71	62	5	5	9	80	40
Flint	130,316	17	8	0	0	0	0	2	1
Grand Rapids	153,698	8	5	0	0	2	0	0	2
Wisconsin:									
Kenosha	50,891	26	2	0	0	0	45	11	1
Madison	46,385	42	0	0	0	0	5	0	1
Milwaukee	509,192	117	21	23	0	0	51	33	19
Racine	67,707	17	2	3	0	0	0	13	0
Superior	39,671	1	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	1	3	0	0	0	25	0	3
Minneapolis	425,435	152	23	17	0	0	0	3	12
St. Paul	246,001	43	17	5	0	2	5	1	12
Iowa:									
Davenport	52,469	0	1	0	0	--------	9	0	--------
Des Moines	141,441	1	4	2	0	--------	3	0	--------
Sioux City	76,411	17	1	1	0	--------	0	2	--------
Waterloo	36,771	15	0	0	0	--------	5	0	--------
Missouri:									
Kansas City	367,481	49	11	3	1	1	15	2	16
St. Joseph	78,342	0	4	0	1	1	0	0	3
St. Louis	821,543	49	55	45	0	0	15	17	--------
North Dakota:									
Fargo	26,403	4	0	0	0	0	3	1	1
Grand Forks	14,811	0	0	0	0	--------	1	0	--------
South Dakota:									
Aberdeen	15,036	11	0	0	0	--------	0	1	--------
Sioux Falls	30,127	4	1	0	0	--------	1	0	--------
Nebraska:									
Lincoln	60,941	15	2	0	0	0	4	0	2
Omaha	211,768	6	5	4	0	0	28	15	9
Kansas:									
Topeka	55,411	17	2	2	0	1	1	0	1
Wichita	88,367	20	4	3	0	0	0	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	0	3	4	0	0	0	0	6
Maryland:									
Baltimore	796,296	139	32	55	41	5	4	9	38
Cumberland	33,741	1	1	2	2	1	1	0	1
Frederick	12,035	0	0	2	2	1	0	0	0
District of Columbia:									
Washington	497,906	70	21	20	10	2	0	0	20
Virginia:									
Lynchburg	30,395	8	1	1	0	0	0	0	0
Norfolk	(1)	15	3	0	5	0	1	0	8
Richmond	186,403	3	7	15	0	0	56	2	5
Roanoke	58,208	6	1	2	0	0	0	0	1
West Virginia:									
Charleston	49,019	6	2	1	0	1	3	1	4
Wheeling	56,208	6	2	0	0	0	1	1	6
North Carolina:									
Raleigh	30,371	15	1	1	0	0	2	0	2
Wilmington	37,061	10	0	1	0	0	1	1	0
Winston-Salem	69,031	7	1	1	0	2	1	3	0
South Carolina:									
Charleston	73,125	1	2	1	0	0	0	0	1
Columbia	41,225	4	1	0	0	--------	0	0	--------
Greenville	27,311	2	0	0	0	0	0	0	0

[1] No estimate made.

City reports for week ended January 15, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
Georgia:									
Atlanta	(1)	3	4	11	38	0	30	4	8
Brunswick	16,809	0	0	0	0	0	0	1	0
Savannah	93,134	0	2	0	9	1	1	1	4
Florida:									
Miami	69,754	12		2	0	0	1	9	2
St. Petersburg	26,847		0			0			0
Tampa	94,743	3	1	2	2	0	11	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	7	0	0	0	0	3
Louisville	305,935	11	8	4	3	0	0	1	9
Tennessee:									
Memphis	174,533	19	6	8	0	2	1	0	9
Nashville	136,220	1	2	9	0	2	1	0	9
Alabama:									
Birmingham	205,670	11	3	17	1	1	11	1	7
Mobile	65,955	4	1	0	0	2	5	0	2
Montgomery	46,481	0	0	4	0	0	1	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	2	1	0	0	1	0	6	
Little Rock	74,216	0	1	1	0	0	0	1	2
Louisiana:									
New Orleans	414,493	0	14	17	11	6	68	0	15
Shreveport	57,857	6	1	2	0	1	0	6	3
Oklahoma:									
Oklahoma City	(1)	0	2	0	4	1	0	0	4
Texas:									
Dallas	194,450	7	9	19	4	3	5	3	5
Galveston	48,375	0	2	0	0	0	0	0	0
Houston	164,954	4	5	13	0	0	0	2	11
San Antonio	198,069	1	2	7	0	0	0	0	6
MOUNTAIN									
Montana:									
Billings	17,971	0	1	0	0	0	12	0	0
Great Falls	29,883	8	1	0	0	1	6	0	1
Helena	12,037	0	0	1	0	0	0	0	1
Missoula	12,668	4	0	0	0	0	1	14	1
Idaho:									
Boise	23,042		0						
Colorado:									
Denver	280,911	24	10	4		9	92	0	10
Pueblo	43,787	8	3	2	0	1	2	0	3
New Mexico:									
Albuquerque	21,000	2	0	0	1	0	7	8	3
Arizona:									
Phoenix	38,669	1	0	0	0	1	0	0	5
Utah:									
Salt Lake City	130,948	27	3	6	0	0	242	2	6
Nevada:									
Reno	12,665	0	0	0	0	0	1	0	0
PACIFIC									
Washington:									
Seattle	(1)	55	7	2	0		10	32	
Spokane	108,897	20	4	1	0		238	0	
Tacoma	104,455	7	4	2	0		4	1	
Oregon:									
Portland	282,383	21	10	11	13	0	17	3	9
California:									
Los Angeles	(1)	71	42	53	19	3	99	8	38
Sacramento	72,260	3	3	3	0	0	61	23	5
San Francisco	557,530	26	22	13	8	1	154	21	5

1 No estimate made.

City reports for week ended January 15, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	1	0	0	0	1	1	2	0	32	25
New Hampshire:											
Concord	0	1	0	0	0	0	0	0	0	0	12
Manchester	3	0	0	0	0	1	0	0	0	0	22
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	0
Burlington	2	0	1	0	0	0	0	0	0	4	12
Massachusetts:											
Boston	59	137	0	0	0	15	1	4	0	14	224
Fall River	2	0	0	0	0	5	0	2	1	5	30
Springfield	9	9	0	0	0	2	0	0	0	0	41
Worcester	12	15	0	0	0	3	0	0	0	4	49
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	17
Providence	8	11	0	0	0	3	0	1	0	8	70
Connecticut:											
Bridgeport	8	13	0	0	0	5	0	0	0	0	44
Hartford	8	11	0	0	0	1	0	0	0	6	28
New Haven	10	7	0	0	0	1	0	0	0	0	43
MIDDLE ATLANTIC											
New York:											
Buffalo	25	13	1	0	0	11	1	0	0	15	162
New York	211	439	0	2	0	[1] 110	11	11	1	59	1,591
Rochester	14	12	0	0	0	4	0	3	0	10	56
Syracuse	14	22	0	0	0	0	1	1	0	5	53
New Jersey:											
Camden	5	6	0	0	0	1	1	0	0	0	29
Newark	24	53	0	0	0	12	0	0	0	20	121
Trenton	5	4	0	0	0	2	0	0	0	2	37
Pennsylvania:											
Philadelphia	84	99	1	0	0	31	4	2	0	30	573
Pittsburgh	39	38	0	0	0	12	1	0	0	13	236
Reading	2	0	0	0	0	1	0	0	0	1	28
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	24	1	0	0	10	0	0	0	5	153
Cleveland	40	60	3	0	0	8	2	1	0	22	203
Columbus	11	18	1	2	0	4	0	0	0	4	94
Toledo	15	26	1	0	0	2	1	1	1	40	71
Indiana:											
Fort Wayne	4	6	1	2	0	2	0	0	0	2	19
Indianapolis	10	28	11	23	0	4	1	0	0	8	98
South Bend	4	1	1	0	0	0	0	0	0	0	16
Terre Haute	3	1	1	0	0	0	0	0	0	0	22
Illinois:											
Chicago	135	141	2	0	0	40	4	1	0	68	732
Peoria	6	2	0	0	0	0	0	0	0	1	19
Springfield	2	5	0	0	0	2	0	0	0	2	22
Michigan:											
Detroit	92	128	3	1	0	23	2	0	0	44	310
Flint	9	31	0	2	0	1	1	0	0	6	21
Grand Rapids	12	11	0	0	0	1	0	0	0	2	39
Wisconsin:											
Kenosha	1	9	1	0	0	1	0	0	0	12	10
Madison	3	6	0	0	0	1	0	0	0	4	8
Milwaukee	32	48	2	1	0	8	1	0	0	67	129
Racine	6	4	1	0	0	0	0	0	0	6	13
Superior	3	3	3	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	6	0	0	0	2	1	0	0	0	35
Minneapolis	50	78	14	0	0	3	1	1	0	0	86
St. Paul	29	29	11	1	0	2	0	2	0	18	63
Iowa:											
Davenport	2	4	2	0	--------	--------	0	0	--------	0	--------
Des Moines	7	4	2	0	--------	--------	0	0	--------	0	--------
Sioux City	2	11	1	3	--------	--------	0	0	--------	2	--------
Waterloo	2	1	1	0	--------	--------	0	0	--------	3	--------

[1] Pulmonary tuberculosis only.

City reports for week ended January 15, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	14	52	2	6	0	9	0	0	0	5	113
St. Joseph	3	3	1	0	0	1	0	0	0	0	30
St. Louis	40	42	3	4	0	10	2	0	0	25	229
North Dakota:											
Fargo	2	17	0	0	0	1	0	0	0	0	4
Grand Forks	1	4	0	0	------	------	0	0	------	0	------
South Dakota:											
Aberdeen	0	12	0	0	------	------	0	0	------	0	------
Sioux Falls	2	0	0	0	------	------	0	0	------	0	------
Nebraska:											
Lincoln	3	3	0	0	0	0	0	0	0	0	23
Omaha	5	24	8	3	0	3	0	0	0	2	------
Kansas:											
Topeka	3	6	0	16	0	1	0	0	0	6	16
Wichita	4	12	0	2	0	1	0	0	0	3	24
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	32	0	0	0	0	1	0	0	1	29
Maryland:											
Baltimore	34	37	0	0	0	12	2	5	2	75	246
Cumberland	1	1	0	0	0	2	0	0	0	0	11
Frederick	0	1	0	0	0	0	0	0	0	1	2
Dist. of Columbia:											
Washington	25	32	1	0	0	12	2	0	1	20	165
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	0	10
Norfolk	2	4	0	0	0	4	0	0	0	12	------
Richmond	5	6	0	0	0	4	0	0	0	56	51
Roanoke	1	4	0	2	0	1	1	1	1	2	13
West Virginia:											
Charleston	1	1	0	0	0	1	0	0	0	3	22
Wheeling	1	1	0	0	0	0	0	1	0	0	22
North Carolina:											
Raleigh	0	0	0	2	0	0	0	0	0	11	7
Wilmington	1	1	0	0	0	0	0	0	0	6	10
Winston-Salem	2	2	2	3	0	2	0	0	0	10	21
South Carolina:											
Charleston	1	2	0	1	0	2	0	1	0	0	24
Columbia	0	0	0	0	------	------	0	0	------	4	------
Greenville	0	0	1	0	0	1	0	0	0	3	12
Georgia:											
Atlanta	3	13	2	16	0	0	1	1	0	1	75
Brunswick	0	0	1	0	0	1	0	0	0	0	2
Savannah	0	4	0	2	0	0	1	0	0	4	28
Florida:											
Miami	------	2	------	0	0	0	------	1	0	8	36
St. Petersburg	0	------	0	------	0	1	0	------	0	------	16
Tampa	1	1	0	2	0	3	1	0	0	0	31
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	2	0	0	0	0	0	0	0	0	19
Louisville	5	14	0	0	0	3	0	0	0	17	61
Tennessee:											
Memphis	5	19	2	4	0	6	0	3	1	19	74
Nashville	3	2	0	0	0	4	0	0	0	6	50
Alabama:											
Birmingham	4	0	3	13	0	2	1	0	0	0	73
Mobile	1	1	0	0	0	4	1	0	0	0	26
Montgomery	0	4	0	0	0	0	0	0	0	1	17
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	------	------	0	0	------	2	6
Little Rock	2	1	0	0	0	1	0	1	0	10	------
Louisiana:											
New Orleans	5	3	1	1	0	13	2	0	0	5	154
Shreveport	1	0	2	0	0	2	0	0	0	0	23

City reports for week ended January 15, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—con.											
Oklahoma:											
Oklahoma City	2	3	1	8	0	0	1	0	1	0	32
Texas:											
Dallas	4	18	1	1	0	0	1	0	0	0	52
Galveston	1	5	0	0	0	1	0	0	0	0	15
Houston	1	3	1	4	0	3	0	3	0	0	49
San Antonio	1	4	0	0	0	10	0	0	0	0	74
MOUNTAIN											
Montana:											
Billings	2	2	0	0	0	0	0	1	1	0	9
Great Falls	1	14	1	0	0	0	0	0	0	0	12
Helena	0	1	0	0	0	1	0	0	0	0	6
Missoula	1	23	0	0	0	0	0	0	0	0	7
Idaho:											
Boise	1		1				0				
Colorado:											
Denver	11	73	2	0	0	3	0	0	0	1	79
Pueblo	2	4	0	0	0	4	0	0	0	0	16
New Mexico:											
Albuquerque	0	2	0	0	0	8	0	0	0	0	22
Arizona:											
Phoenix	1	1	0	0	0	3	0	0	0	1	16
Utah:											
Salt Lake City	3	6	2	0	0	1	0	0	0	1	34
Nevada:											
Reno	0	1	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	10	14	3	3			0	3		11	
Spokane	4	45	3	4			0	1		0	
Tacoma	3	4	3	6			0	0		7	
Oregon:											
Portland	6	20	7	4	0	3	0	1	0	2	74
California:											
Los Angeles	23	46	4	0	0	20	2	3	1	6	295
Sacramento	2	3	1	0	0	4	0	0	0	0	37
San Francisco	13	32	2	1	0	10	0	1	0	12	178

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Fall River	0	0	0	0	0	0	0	1	0
Connecticut:									
Bridgeport	1	1	0	0	0	0	0	0	0
Hartford	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	8	3	3	5	0	0	1	0	1
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Toledo	1	1	0	0	0	0	0	0	0
Indiana:									
Terre Haute	0	0	0	1	0	0	0	0	0

City reports for week ended January 15, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—continued									
Illinois:									
Chicago	3	1	1	0	0	0	1	0	0
Michigan:									
Detroit	1	1	1	0	0	0	0	0	0
Grand Rapids	0	0	0	0	0	0	0	1	1
Wisconsin:									
Milwaukee	4	3	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	0	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	0	0	0	0	1	0	0	0	0
St. Louis	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	0	0	0	0	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	0	0	-------	1	0
Tampa	0	0	0	0	0	0	0	1	0
EAST SOUTH CENTRAL									
Alabama:									
Mobile	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	3	0	0	0
Louisiana:									
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	1	2	0	0	0
MOUNTAIN									
Montana:									
Helena	3	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	4	-------	0	-------	0	-------	0	0	-------
Oregon:									
Portland	2	2	0	0	0	0	0	0	0
California:									
Los Angeles	1	0	1	1	0	1	0	1	0

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 15, 1927, compared with those for a like period ended January 16, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 12, 1926, to January 15, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927
101 cities	[2] 158	189	122	[3] 163	132	177	170	[4] 199	146	[5] 187
New England	132	161	89	161	141	158	139	158	144	174
Middle Atlantic	147	167	108	139	126	171	182	183	151	177
East North Central	154	216	150	[6] 184	132	193	151	223	135	189
West North Central	178	129	184	113	160	165	288	189	258	159
South Atlantic	192	218	94	[4] 216	129	175	177	[4] 232	140	216
East South Central	89	145	74	150	110	187	52	138	67	250
West South Central	[2] 241	258	128	168	150	224	189	256	120	247
Mountain	176	164	166	137	111	137	182	126	128	[5] 122
Pacific	177	253	88	226	127	156	96	230	80	194

MEASLES CASE RATES

101 cities	[2] 515	190	416	[3] 207	613	222	1,147	[4] 384	974	[5] 329
New England	2,082	229	1,579	168	2,406	184	3,087	253	2,861	195
Middle Atlantic	518	24	382	22	558	22	997	31	846	38
East North Central	479	242	537	[6] 241	753	260	1,763	416	1,303	380
West North Central	35	109	70	77	61	60	151	260	129	193
South Atlantic	570	90	240	[4] 62	470	180	1,278	[4] 214	1,345	203
East South Central	79	21	116	31	105	78	52	107	238	97
West South Central	[2] 9	82	9	103	0	13	0	189	17	306
Mountain	28	2,349	28	2,777	83	3,541	55	5,241	91	[5] 3,334
Pacific	77	607	36	884	47	701	64	1,521	51	1,482

SCARLET FEVER CASE RATES

101 cities	[2] 232	279	203	[3] 253	225	268	269	[4] 319	286	[5] 367
New England	192	388	240	248	304	357	295	490	380	478
Middle Atlantic	189	214	146	212	163	234	210	286	238	339
East North Central	286	242	234	[6] 254	249	245	334	283	322	344
West North Central	454	413	438	371	509	385	583	451	557	558
South Atlantic	154	201	157	[4] 172	140	240	156	[4] 243	184	259
East South Central	116	249	163	244	100	176	119	234	140	214
West South Central	[2] 88	237	97	125	119	151	112	155	90	143
Mountain	277	1,111	213	974	250	892	237	953	319	[5] 1,161
Pacific	243	386	182	305	210	253	241	340	268	377

SMALLPOX CASE RATES

101 cities	[2] 20	16	18	[3] 14	24	14	33	[4] 23	47	[5] 22
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	1	1	0	0	1	1	0	0	2	1
East North Central	26	11	25	[6] 16	23	7	48	32	37	21
West North Central	37	46	20	28	18	40	63	58	52	69
South Atlantic	12	26	10	[4] 30	25	41	43	[4] 29	67	51
East South Central	11	78	0	36	74	47	47	41	57	87
West South Central	[2] 23	43	9	26	22	22	52	42	146	25
Mountain	37	0	9	18	37	9	36	0	18	[5] 0
Pacific	113	40	130	43	152	22	110	60	284	37

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Shreveport, La., not included.
[3] Terre Haute, Ind., and Norfolk, Va., not included.
[4] Norfolk, Va., not included.
[5] Boise, Idaho, not included.
[6] Terre Haute, Ind., not included.

Summary of weekly reports from cities, December 12, 1926, to January 15, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Dec. 19, 1925	Dec. 18, 1926	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927
101 cities	[2] 16	12	9	[3] 11	10	12	13	[4] 8	11	[5] 9
New England	10	31	10	40	7	24	31	9	2	21
Middle Atlantic	17	8	11	5	7	7	14	6	16	8
East North Central	13	5	7	[6] 4	6	5	11	5	8	1
West North Central	14	10	4	10	6	4	2	8	4	6
South Atlantic	17	19	12	[4] 16	12	34	9	[4] 8	7	16
East South Central	26	21	5	16	32	21	16	25	16	15
West South Central	[2] 28	22	9	17	48	17	21	25	13	17
Mountain	9	9	18	0	9	27	9	9	9	[5] 9
Pacific	17	24	8	22	8	16	11	8	13	21

INFLUENZA DEATH RATES

95 cities	[2] 14	14	12	[3] 15	15	17	21	[4] 20	23	[7] 21
New England	14	7	12	7	12	21	9	16	14	14
Middle Atlantic	8	13	9	14	10	21	18	18	16	20
East North Central	17	12	8	[6] 10	8	15	12	17	11	16
West North Central	4	15	6	11	15	8	8	15	19	10
South Atlantic	10	26	17	[4] 34	19	17	15	[4] 18	23	21
East South Central	53	5	32	36	32	26	83	46	88	36
West South Central	[2] 36	43	48	19	44	14	44	43	75	43
Mountain	0	9	28	27	28	46	46	63	64	[5] 103
Pacific	18	7	15	4	40	0	57	10	46	[8] 15

PNEUMONIA DEATH RATES

95 cities	[2] 149	138	136	[3] 137	186	163	220	[4] 196	211	[7] 180
New England	158	149	165	151	213	173	245	181	208	190
Middle Atlantic	148	147	145	166	188	179	229	209	236	205
East North Central	132	119	101	[6] 111	145	134	177	170	153	152
West North Central	133	120	99	91	127	118	141	116	127	125
South Atlantic	200	126	205	[4] 152	267	186	291	[4] 237	278	193
East South Central	215	130	142	109	263	192	331	204	284	199
West South Central	[2] 184	184	174	90	276	151	313	241	331	181
Mountain	120	273	203	164	268	200	128	369	328	[5] 206
Pacific	98	124	87	149	138	199	219	210	166	[8] 178

[2] Shreveport, La., not included

[3] Terre Haute, Ind., and Norfolk, Va., not included.

[4] Norfolk, Va., not included.

[5] Boise, Idaho, not included.

[6] Terre Haute, Ind., not included.

[7] Boise, Idaho, and Tacoma, Wash., not included.

[8] Tacoma, Wash., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30, 438, 500	30, 960, 600	29, 778, 400	30, 289, 800
New England	12	12	2, 211, 000	2, 245, 900	2, 211, 000	2, 245, 900
Middle Atlantic	10	10	10, 457, 000	10, 567, 000	10, 457, 000	10, 567, 000
East North Central	16	16	7, 644, 900	7, 804, 500	7, 644, 900	7, 804, 500
West North Central	12	10	2, 585, 500	2, 626, 600	2, 470, 600	2, 510, 000
South Atlantic	21	20	2, 799, 500	2, 878, 100	2, 757, 700	2, 835, 700
East South Central	7	7	1, 008, 300	1, 023, 500	1, 008, 300	1, 023, 500
West South Central	8	7	1, 213, 800	1, 243, 300	1, 181, 500	1, 210, 400
Mountain	9	9	572, 100	580, 000	572, 100	580, 000
Pacific	6	4	1, 946, 400	1, 991, 700	1, 475, 300	1, 512, 800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended January 1, 1927.—The following report for the week ended January 1, 1927, was transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:						
Bombay	----	2	----	0	8	5
Madras	----	0	----	2	9	0
Calcutta	----	0	----	53	107	79
Rangoon	----	3	----	4	1	0
Negapatam	----	0	----	9	2	2
Straits Settlements:						
Singapore	0	0	1	0	6	1

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Semarang	1	1	0	0	0	0
Siam: Bangkok	0	0	2	2	2	1
French Indo-China:						
Turane	0	0	1	1	0	0
Haiphong	0	0	----	43	0	0
U. S. S. R.: Vladivostok	0	0	0	0	3	0
Mauritius: Port Louis	2	1	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

Ceylon.—Colombo.

British India.—Karachi, Chittagong, Cochin, Vizagapatam, Tuticorin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Palembang, Belawan-Deli, Padang, Cheribon, Pontianak, Macassar, Samarinda, Tarakan, Balikpapan.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Saigon and Cholon.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Hongkong.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin.

Japan.—Yokohama, Osaka, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington Christchurch, Invercargill Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Dutch East Indies.—Menado, Banjermasin.
Manchuria.—Antung, Yingkow, Changchun, Mukden.
Kwantung.—Port Arthur, Dairen.
Madagascar.—Tamatave, Majunga.
Reunion.—St. Denis.

The following information has been received for the week 2d to 6th of January, 1927:

Johore Bahru (State of Johore).—Cholera, 2 cases, 1 death.

Belated information

Week ending December 18:
Philippine Islands.—Province of Nueva Vizcaya, cholera, 1 case, 1 death.

Week ending December 25:
Ceylon.—Colombo, plague, 1 case, 1 death.

ARGENTINA

Mortality from communicable diseases—Rosario—November, 1926.—During the month of November, 1926, mortality from communicable diseases was reported at Rosario, Argentine, as follows:

Disease	Deaths	Disease	Deaths
Cerebrospinal meningitis	17	Measles	2
Gastroenteritis	10	Tuberculosis	13
Diphtheria	1	Typhoid fever	1

Total number of deaths from all causes—447. Population, 406,479.

BOLIVIA

Water supply pollution—La Paz.—According to the reported results of a recent official examination of the water supply of La Paz, Bolivia, a statement of which has been received under date of December 6, 1926, a high degree of pollution of the water supply exists at La Paz, Bolivia. It was stated that the filter system at the intake does not function and that the water is not filtered at any point in its flow. It also receives refuse matter from mines along its course and the Indian natives are stated to be making use of the reservoir for bathing and washing of clothing. The reservoir is stated not to be inclosed and to be frequented by livestock.

Epidemic intestinal infections.—During the months of October and November, 1926, epidemic intestinal infections were stated to be prevalent in all parts of the city, with much mortality.

CANADA

Communicable diseases—Week ended January 15, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended January 15, 1927, as follows:

	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	15				1			16
Lethargic encephalitis				1	1			2
Smallpox				36	3	6	10	55
Typhoid fever	2	3	15	7			1	28

CHINA

Epidemic pneumonic plague—Mongolia—December, 1926.—Further information received under date of December 21, 1926, relative to the outbreak of plague at Urga and Sanbese, Mongolia, China, reported December 18,[1] shows that press notices appeared early in December stating that pneumonic plague was spreading over Central Mongolia and that late in November the epidemic had extended beyond the plain country to a monastery and encampments at a point 100 miles from Tzetsenkhan and attacked about 500 persons. The town of Sanbese was stated to be crowded with refugees from the infected areas. A medical unit was sent from Urga to combat the spread of the epidemic. Preventive measures were reported being taken at stations on the Chinese Eastern Railway.

ESTONIA

Communicable diseases—November, 1926.—During the month of November, 1926, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Diphtheria	44	Scarlet fever	488
Leprosy	3	Tuberculosis	144
Measles	612	Typhoid fever	39

Population, 1,107,059.

PANAMA CANAL

Communicable diseases—November, 1926.—During the month of November, 1926, communicable diseases were reported in the Canal Zone, and at Colon and Panama, as follows:

Disease	Canal Zone		Colon		Panama		Infected in other localities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chicken pox	3				3				6	
Diphtheria			1		11	1			12	1
Dysentery					2		3		5	
Hookworm			7		55		34		96	
Malaria	35	1	1		2		13	3	51	
Measles	3		12		36		2		53	
Meningitis					1	1	1	1	2	2
Pneumonia		3		2		16		2		23
Relapsing fever			1				1		2	
Tuberculosis		3		7		19		4		33
Whooping cough	1		2						3	

[1] Public Health Reports, Dec. 31, 1926, p. 20

SPAIN

Mortality from communicable diseases—Madrid—November, 1926.—During the month of November, 1926, 231 deaths from communicable diseases were reported in Madrid, Spain, including tuberculosis, 152, and typhoid fever, 19. The total number of deaths from all causes was 1,213. Population, estimated, 766,552.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State—December 5-11, 1926.—During the week ended December 11, 1926, plague was reported in the Union of South Africa as follows: Cape Province—One fatal case, native, in Middelburg District; Orange Free State—in Bothaville District, one fatal case, European; in Hoopstad District, one case native. The cases occurred on farms.

VIRGIN ISLANDS

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	3	
Chicken pox	2	
Gonorrhea	2	Imported, 1.
Syphilis	3	Primary, 2; secondary, 1.
Tuberculosis	1	Chronic pulmonary.
Uncinariasis	1	Necator americana.
St. Croix:		
Chancroid	1	
Filariasis	2	Bancrofti.
Leprosy	1	
Tuberculosis	1	Chronic pulmonary.

WEST AFRICA

Plague—Senegal—December 19-25, 1926.—During the week ended December 25, 1926, 6 cases of plague were reported at Tivaouane, interior of Senegal.

Yellow fever.—During the same period, three fatal cases of yellow fever, two European and one Syrian, were reported in Senegal, and one fatal case in the French Sudan.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended February 4, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
Chosen	Sept. 1-30	231	143	
French Settlements in India	Sept. 26-Oct. 30	35	30	
India:				
Calcutta	Nov. 21-Dec. 11	97	78	
Rangoon	Dec. 5-11	1		
Japan				
Hiogo	Nov 14-20	3		
Russia	Aug. 1-31	1		
Siam	Nov. 28-Dec. 4	25	6	Apr. 1-Dec. 4, 1926. Cases, 7,792; deaths, 5,130.
Bangkok	do	1	1	
Straits Settlements	Aug. 22-Oct. 16		49	

PLAGUE

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Tanganyika Territory	Nov. 21-27	6	6	
Uganda	Sept. 1-30	117	110	
China.				
Mongolia				Dec. 21, 1926: About 500 cases reported.
Nanking	Dec. 5-18			Prevalent.
Greece:				
Athens	Dec 1-31	9	1	Including Piraeus.
India.				
Madras Presidency	Nov. 21-Dec. 4	186	100	
Java:				
Batavia	Dec. 5-11	21	19	Province.
Nigeria	Sept. 1-30	305	277	
Russia	May 1-June 30	44		
Do	July 1-Aug 31	19		
Tunisia	Nov. 1-30	188		
Turkey:				
Constantinople	Dec 15-25	1		
Union of South Africa:				
Cape Province	Dec. 5-11	1	1	Native. On farm in Middelburg district.
Orange Free State	do	12	2	Bothaville district, one case European; in Hoopstad district, one case, native. Fatal. On farms.
West Africa:				
Senegal—				
Tivaouane	Dec. 19-25	6	2	Interior of Senegal.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Oct. 21-Nov. 20			Cases, 317.
Algiers	Dec. 11-20	2		
Brazil:				
Bahia	Nov. 21-Dec. 18	9	5	
Pernambuco	Dec. 5-11	1	1	
Sao Paulo	Oct. 4-24	2	1	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
Canada:				
Alberta				Jan. 9-15, 1927: Cases, 10.
Calgary	Jan. 11-17	4		
Edmonton	Dec. 1-31	4		
Manitoba				Jan. 9-15, 1927: Cases, 3.
Winnipeg	Jan. 16-22	1		
Ontario				Jan. 9-15, 1927: Cases, 36.
Toronto	Jan. 9-15	10		
Saskatchewan				Jan. 9-15, 1927: Cases, 6.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended February 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 28-Dec. 11			Present.
Foochow	Dec. 19-25			Do.
Manchuria—				
Harbin	Dec. 16-22	1		
Nanking	Dec. 12-25			Do.
Chosen	Sept. 1-30	9	4	
France	Oct. 1-31	99		
Paris	Dec. 11-20	5		
French Settlements in India	Sept. 26-Nov. 30	43	43	
Great Britain:				
England and Wales	Dec. 12-Jan. 1	962		
Sheffield	Dec. 19-25	22		
Do	Dec. 26-Jan. 1	16		
Greece:				
Athens	Dec. 1-31	14	2	
India:				
Bombay	Dec. 5-18	11	8	
Calcutta	Nov. 21-Dec. 11	81	60	
Madras	Dec. 12-25	16	1	
Rangoon	Dec. 5-11		1	
Italy	Sept. 12-Oct. 23	8		
Java:				
Surabaya	Nov. 21-27	2		
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
San Luis Potosi	Jan. 9-15		6	
Torreon	Dec. 26-Jan. 1		1	
Do	Jan. 2-8		4	
Nigeria	Aug. 1-Sept. 30	61	3	
Portugal:				
Lisbon	Dec. 26-Jan. 1	3		
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Siam	Nov. 28-Dec. 4	6	3	Apr. 1-Dec. 4, 1926: Cases, 697; deaths, 261.
Bangkok	do	5	3	
Tunisia	Oct. 31-Nov. 20	6		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks. On farm.
Steynsburg district	do			Outbreaks.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Oct. 21-Nov. 20	10		
Bulgaria	Oct. 1-31	1	1	
Chile:				
Valparaiso	Dec. 19-25	1		
Chosen	Sept. 1-30	10		
Gold Coast	do	1	1	
Greece:				
Athens	Dec. 1-31	11	2	
Italy	Sept. 5-Oct. 23	2		
Lithuania	Oct. 1-31	5		
Mexico	July 1-Aug. 31		46	
Mexico City	Jan. 2-8	4		Including municipalities in Federal District.
Nigeria	Sept. 1-30	1		
Rumania	Oct. 1-31	42	3	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Turkey:				
Constantinople	Dec. 12-25	3		
Union of South Africa:				
Cape Province—				
Port St. Johns district	Dec. 5-11			Outbreak. On farm.

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
West Africa:				
French Sudan	Dec. 19-25	1	1	European.
Senegal	do	3	3	European, 2; Syrian, 1. Occurring at Diourbel, Foundiougne, and Rufisque.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 28, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14-20			Present.
Tsingtao	Nov. 14-Dec. 11			Do.
French Settlements in India	Aug. 29-Oct. 2	93	64	
India	Oct. 10-Nov. 13			Cases, 7,093; deaths, 4,170.
Calcutta	Oct. 31-Dec. 4	124	100	
Rangoon	Nov. 21-Dec. 4	3	3	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Siam	do			Case, 1.
Do	Apr. 1-Nov. 20			Cases, 7,714; deaths, 5,080.
Bangkok	Oct. 31-Nov. 20	6	1	
Straits Settlements	July 25-Aug. 21		11	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Ceylon:				
Colombo	Nov. 14-Dec. 4	2	1	Two plague rodents.
China:				
Nanking	Oct. 31-Nov. 20			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 15	18	5	Rats taken, 37,963; found infected, 131.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Kafr el Sheikh	Dec. 3-9	2		
Tanta District	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	do		3	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Nov. 13			Cases, 7,985; deaths, 4,660.
Bombay	Nov. 21-27	1	1	
Madras	Oct. 17-23	83	45	
Do	Nov. 1-7	75	32	
Rangoon	Nov. 14-Dec. 4	7	6	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-Dec. 4	27	26	Province.
Surabaya	Oct. 24-Nov. 6	8	8	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	do	2	2	
Maevatanana	do	10	10	
Moramanga	do	21	15	
Tamatave	do	3	1	
Tananarive	do			Cases, 85; deaths, 79.
Tananarive Town	do	13	13	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 28, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Nigeria	Aug. 1-31	187	164	
Peru	Nov. 1-30			Cases, 24, deaths, 4.
Departments—				
Cajamarca	do			Present.
Ica—				
Chincha	do	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Lima	do			Cases, 30; deaths, 4 Present in Cajatambo and Chancay Provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Syria:				
Beirut	Nov. 11-Dec. 10	2		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-20	1		Native. On farm.
Orange Free State—				
Hoopstad District	Nov. 7-13	1	1	Do.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Oct. 20	160		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Nov. 20	3	3	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 4	56	2	
Rio de Janeiro	Nov. 14-Dec. 25	140	64	
Sao Paulo	Aug. 23-Oct. 3	10	8	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200 In natives.
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-8	17		
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-8	6		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-8	3		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-8	1		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-15	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-8	10		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-15	1		
Toronto	Dec. 14-25	14		
Do	Jan. 1-8	15	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-8	1		
China:				
Chungking	Nov. 7-27			Present.
Foochow	Nov. 7-13			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Mukden	Dec. 5-11	1		
Swatow	Nov. 21-27			Do.
Chosen	Aug. 1-31	33	10	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 28, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
France	Sept. 1-30	66		
Paris	Dec. 1-10	2	2	
French Settlements in India	Aug. 29-Sept. 25	40	40	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Dec. 11			Cases, 1,300.
Newcastle-on-Tyne	Dec. 5-11	2		
Sheffield	Nov. 28-Dec. 18	22		
Greece	Nov. 1-30	20		
India	Oct. 10-Nov. 13			Cases, 3,967; deaths, 983.
Bombay	Nov. 7-Dec. 4	11	8	
Calcutta	Oct. 31-Dec. 4	61	38	
Madras	Nov. 21-Dec. 11	7	1	
Rangoon	Nov. 28-Dec. 4	1		
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Nov. 20	3	2	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Sept. 11	4		
Jamaica	Nov. 26-Dec. 25	34		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 13	8	1	
Mexico:				
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 21-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Jan. 8	1		Do.
San Luis Potosi	Nov. 12-Dec. 18		3	
Torreon	Nov. 28-Dec. 25		7	
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Dec. 25	40	4	
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept. 30	7	1	
Siam	Apr. 1-Nov. 27			Cases, 691; deaths, 258.
Bangkok	Oct. 31-Nov. 27	13	3	
Straits Settlements:				
Singapore	Oct. 31-Nov. 20	2		
Tunisia	Oct. 1-20	1		
Union of South Africa:				
Cape Province—				
Stutterheim district	Nov. 21-27			Outbreaks.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to 28, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept 21-Oct. 20	12		
Bulgaria	July 1-Sept. 30	221	24	
Chile:				
Valparaiso	Nov. 21-Dec 18	5		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct 24-Nov. 6			Present.
Chosen	Aug. 1-31	5		
Seoul	Nov 1-30	1		
Greece	do			Cases, 12.
Athens	do	4		
Italy	Aug. 29-Sept. 11	1		
Lithuania	Sept. 1-30	12	2	
Mexico:				
Mexico City	Dec. 5-11	3		Including municipalities in Federal District
Palestine:				
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Jaffa	Nov. 23-Dec. 20	6		
Nazareth	Nov. 16-Dec. 20	7		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
Rumania	Aug. 1-Sept. 30	72	3	
Russia	Aug. 1-31	1,156		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 4			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-30	9		

YELLOW FEVER

Gold Coast	Aug. 1-31	7	2	
Senegal:				
Diourbel	Dec. 6	1	1	
Rufisque	Nov. 27	1	1	In European.
Upper Volta:				
Gaoua district	Oct. 25	2		

TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 6

FEBRUARY 11 - - 1927

SPECIAL ARTICLES

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 FEBRUARY 11, 1927 No. 6

INFLUENZA IN FOREIGN COUNTRIES

The following information relative to the prevalence of influenza in foreign countries was received by the health section of the secretariat of the League of Nations from the health administrations of the various countries. These data are supplemental to the report published in the Public Health Reports of February 4, 1927, page 283.

Austria.—(January 14.) Influenza is not epidemic in Austria.

Bulgaria.—(January 11.) Usual seasonal incidence of influenza.

Egypt.—(January 13.) Influenza cases reported in Egypt during December numbered 171; deaths from influenza, 38.

England.—The following comment on the mortality returns for large towns of England and Wales is made by the British Ministry of Health:

Influenza deaths in London and the 105 great towns in England and Wales remained steady and at a low level, but during the week ended January 8 there was a sharp rise in the numbers returned by both London and the other great towns. In London the pneumonia mortality for the week ending January 1 was slightly higher than during the previous four weeks, and the bronchitis mortality showed a considerable increase. The notifications of acute primary pneumonia and acute influenzal pneumonia, however, showed no material increase up to January 1 and are less than those returned for the weeks ending December 11 and 18.

Speaking generally, the death certificates of influenza and the notifications of pneumonia in the week ending January 8, 1927, are slightly more numerous than in the comparable periods of 1925 and 1926. The seasonal rise in the occurrence of this disease and its sequelæ came later than January in the years 1925 and 1926.

Deaths from influenza and related causes in large English towns November 28, 1926, to January 8, 1927

Week ending—	Influenza		London	
	105 great towns	London	Bronchitis	Pneumonia
Dec 4, 1926	68	14	91	104
Dec 11, 1926	52	13	105	129
Dec 18, 1926	66	18	112	135
Dec 25, 1926	69	16	95	116
Jan 1, 1927	86	17	162	176
Jan 8, 1927	172	72	218	224

Estonia.—(January 13.) A mild outbreak of influenza occurred at the beginning of November. The situation is now normal.

Finland.—(January 13.) There is no influenza epidemic in Finland.

France.—Six deaths from influenza have been reported at Lille during the week ending January 1, as compared with 12 during the preceding week, and 7 during the week ended December 18.

Germany.—(January 14.) Influenza has been increasing in certain parts of Germany since the beginning of January; the type is generally benign. The Berlin General Sickness Insurance Institute (Allgemeine Ortskrankenkasse) reported 720 new influenza cases on January 10, 1,042 on January 11, and 1,043 cases on January 12 (682 cases on January 6). Five deaths of its members have been attributed to influenza since the beginning of January.

Greece.—(January 12.) Influenza epidemic appeared one month ago; quite mild type, affections of respiratory system predominant.

Hungary.—(January 11.) No case of epidemic influenza has been reported in Hungary since the beginning of December.

India.—Returns of infectious diseases for the week ending December 25 include three deaths from influenza in Bombay Presidency, two deaths in Bihar and Orissa and nine deaths in Bengal. No death was reported from the other Provinces. It appears therefore that influenza is not seriously prevalent at present in India.

Irish Free State.—Influenza has not been prevalent in Ireland during the present winter. There were four deaths from influenza at Dublin during the week ending December 25, two deaths during the week ending January 1, and only one death during the week ending January 8, 1927.

Italy.—(January 13.) No center of epidemic influenza exists in Italy and the health conditions are very good.

Latvia.—(January 11.) Influenza present but not epidemic.

Lithuania.—(January 15.) Influenza is not uncommon but no marked increase has occurred during recent weeks. The notifications of this disease numbered 472 in November and 390 in December.

Netherlands.—Thirteen deaths were attributed to influenza in the city of Amsterdam during the week ending January 1, as compared with 4 during the preceding week; deaths from all causes numbered 161 during the week, as compared with 116 during the previous week.

Norway.—(January 12.) In 21 towns including Bergen: Influenza, 2,754 cases, 11 deaths; pneumonia, 158 cases, 23 deaths; bronchitis, 2,142 cases, 5 deaths. No increased virulence of type has been reported.

Poland.—(January 11.) Influenza is reported at Warsaw, Lemberg, Cracow. The form is mild and the mortality very low; complications, mostly pulmonary, are rare. Neither incidence nor

mortality is higher than during the corresponding season last year. Notification of influenza cases is being made compulsory in large towns.

Rumania.—(January 13.) Very mild influenza epidemic in the army and civil population. Hardly any fatal cases. Prevailing clinical type, bronchial. Local sanitary administrations report no spread. No special sanitary measures taken.

Scotland.—The following table gives the number of deaths from influenza and from respiratory diseases, by weeks, November 28, 1926, to January 8, 1927. The registrars' offices were closed on December 25 and January 1, and some registrations were probably carried over to the following weeks. This would tend to reduce the number of deaths registered during the week ending December 25, and increase the number for the week ending January 8.

Week ending—	Influenza			Respiratory diseases		
	Glasgow	Edinburgh	14 other towns	Glasgow	Edinburgh	14 other towns
Dec. 4, 1926	4	3	3	84	20	32
Dec. 11, 1926	5	3	2	84	27	41
Dec. 18, 1926	5	1		86	15	60
Dec. 25, 1926	4	2	3	62	9	46
Jan. 1, 1927	4	2	6	95	24	56
Jan. 8, 1927	5	1	7	98	37	57

Kingdom of the Serbs, Croats, and Slovenes.—(January 11.) Influenza has been prevalent since December; the type is mild catarrhal. Fatal cases minimal.

Spain.—(January 16.) The influenza has spread to 35 Spanish Provinces and to Las Palmas (Gran Canaria). In all these Provinces it showed a benign character. In Barcelona, Bilbao, and the other Provinces it is on the decrease, and in the Provinces of San Sebastian, Valence, and Madrid the situation is about the same. In the latter Province the death rate increased during the week of January 9 to 16, owing to influenza, heart, and respiratory diseases, and is twice as much as during normal periods.

Switzerland.—There were 80 deaths from influenza in Swiss towns during the week ending January 1, as against 31 during the previous week. The number of deaths occurring in each town is specified below.

Deaths from influenza in Swiss towns during the week ending January 1, 1927

Zurich	5	Montreux	1
Basle	14	Herisau	1
Geneva	30	Soleure	1
Bern	8	Vevey	1
Lausanne	3	Locle	2
Chaux de Fonds	2	Granges	1
Bienne	3		
Neuchatel	4	Total	80
Friburg	4		

LATER INFORMATION

A telegram from the health section of the Secretariat of the League of Nations dated February 4, 1927, gives the following later information:

Influenza is abating in the southern districts of England, but spreading in the midland districts. The north of England is comparatively free from the disease. Scotland and Ireland are reported practically free from the disease. A mild form of influenza is spreading in Sweden, Finland, Czechoslovakia, Bulgaria, and Macedonia. It is decreasing in France, Belgium, Netherlands, Spain, Switzerland, and Poland, and in Berlin. No unusual prevalence of influenza is reported from Italy, Russia, North Africa, India, or Australia. Outbreaks were reported in Korean towns.

TOXIC EFFECTS OF ETHYLENE DIBROMIDE [1]

By B. G. H. Thomas, Assistant Pathologist, and W. P. Yant, Associate Chemist, Pittsburgh Experiment Station, United States Bureau of Mines.

In connection with a recent investigation of the toxic effects of ethyl gasoline,[2] the Bureau of Mines had occasion to make a brief study of the acute toxic effects of ethylene dibromide [3] on guinea pigs and rats. No attempt was made to determine the minimum lethal dose. However, the results of the study indicate that it is very toxic and that precaution is necessary to obviate poisoning in the manufacture of ethylene dibromide.

Ethylene dibromide, $C_2H_4Br_2$, is a colorless, volatile, emulsifiable liquid, which has a chloroformlike odor. Its boiling point is 129°–131° C., and its specific gravity is 2.189. Ethylene dibromide is insoluble in water but soluble in alcohol, ether, and gasoline.

APPARATUS USED

The essential feature of the apparatus [4] used for inhalation experiments on guinea pigs (see accompanying figure) is that water drops in *c* from the reservoir *r* at a constant, regulated rate, forcing the mercury to rise in *b* and expelling a constant definite amount of ethylene dibromide on the wick *e*, which is completely evaporated by a constant stream of air so regulated as to give the desired vapor-air mixture which flows into the chamber *j*.

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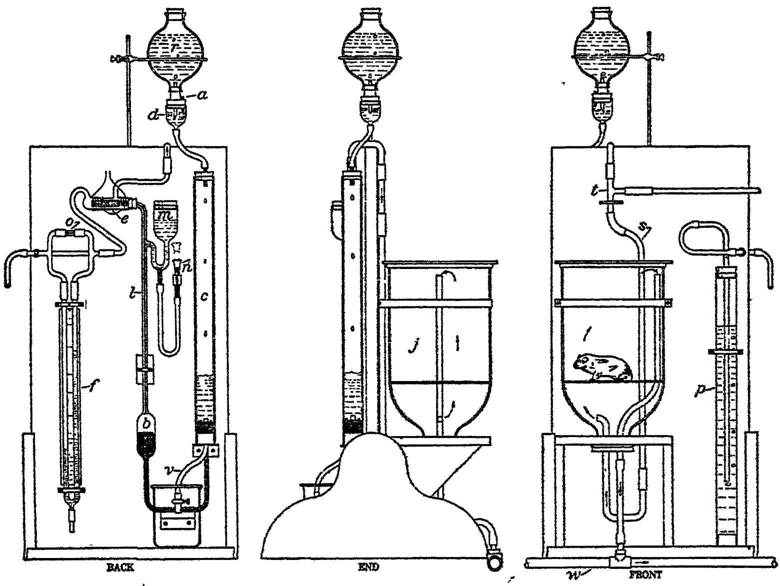
[1] Published with approval of the Director, U. S. Bureau of Mines. Manuscript submitted for publication October 16, 1926.

[2] This study was conducted in cooperation with the Ethyl Gasoline Corporation.

[3] Ethylene dibromide is a component of ethyl gasoline (approx. 2 cc. per gallon of gasoline), as sold at the time of the investigation.

[4] Yant, W. P., and Frey, F. E.: Apparatus for preparing vapor-air mixtures of constant composition. Ind. and Eng. Chem. vol. 17, 1925, pp. 692–694.

Experiments were also conducted on rats, on which the material was applied on the abdomen. The animals were tied on a board by their feet, which were stretched out to each corner, which made it impossible for them to lick their abdomen. They were placed under an inclosed hood in which there was a good upward suction of air, such as is found in a chemical laboratory. The abdomen was shaved 30 minutes before the fluid was applied. The liquid was gradually applied on the skin by means of a pipette so that it wetted



Apparatus for preparing vapor-air mixtures

an area of 2 centimeters square. The site of application was dry before the animals were removed from the board, and when freed they made no attempt to lick the abdomen while under observation for six hours.

Tissues of the guinea pigs dying from inhaling ethylene dibromide were prepared for microscopic examination by fixing in Zenker's solution, embedding in paraffin, sectioning, staining with Bullard's hematoxylin, and counterstaining with anilin acid fuchsin and Biebrich scarlet.

RESULTS OF EXPERIMENTS

GUINEA PIGS

Nine guinea pigs divided into three equal groups were subjected to single exposures of vapors of commercial ethylene dibromide as follows:

Animal No.	Vapor concentration, per cent in air	Length of exposure, minutes	Result, hours survived
E Br 4	0.8	30	[1] 6 to 18
E Br 5	.8	30	[1] 6 to 18
E Br 6	.8	30	[1] 6 to 18
E Br 1	.4	60	[1] 6 to 18
E Br 2	.4	60	[1] 6 to 18
E Br 3	.4	60	[1] 6 to 18
E Br 7	.2	150	[1] 6 to 18
E Br 8	.2	150	[1] 6 to 18
E Br 9	.2	150	[1] 6 to 18

[1] The animal was alive at the end of six hours, but was found dead the following morning.

These results clearly show that the vapors of ethylene dibromide are toxic for guinea pigs.

RATS

Experiments in which commercial and purified ethylene dibromide was applied on the abdomen were conducted on 6 rats receiving single doses of the following amounts:

Animal No.	Amount of ethylene dibromide	Result, hours survived
11 E Br 1	1 cubic centimeter commercial	6
11 E Br 4	1 cubic centimeter purified	[1] 6 to 18
11 E Br 2	0.5 cubic centimeter commercial	[1] 6 to 18
11 E Br 5	0.5 cubic centimeter purified	[1] 6 to 18
11 E Br 3	0.25 cubic centimeter commercial	[1] 6 to 18
11 E Br 6	0.25 cubic centimeter purified	[1] 6 to 18

[1] The animal was alive at the end of six hours, but was found dead the following morning.

These experiments clearly indicate that 0.25 cubic centimeter of ethylene dibromide applied on the abdomen of rats will cause death within 24 hours.

DIGEST OF GROSS AND MICROSCOPIC AND PATHOLOGIC CHANGES

External appearance.—At autopsy no external body changes were visible to the eye and particular note was taken as to the condition of the skin of the rats at the site of application.

Characteristic odor.—A characteristic odor was encountered on opening the bodies of all animals in these experiments. The odor resembled that of putrid mushrooms, and if once detected it is very easy to remember. The odor is not that of ethylene dibromide.

Lungs.—The lungs appeared congested in all cases, and many were edematous in the guinea pigs exposed to inhalation of the vapors. In one case a small amount of clear fluid was present in the pleural cavity. The sections disclosed varying degrees of congestion and swelling of the alveolar walls. The epithelial lining of the bronchioles was degenerated and disintegrated. Edema was present in many cases, and in the milder cases it was confined to the regions about the blood vessels.

Heart.—The heart was either contracted or relaxed, but in no case was it distended. The muscle appeared pale and slightly edematous. The sections showed a slight degree of interstitial edema, and the muscles appeared more or less granular with the cross striations staining palely.

Liver.—The liver was usually congested, edematous, and showed cloudy swelling. In a few cases the liver was pale. Microscopically, the sinusoids were markedly congested and their walls edematous, and the cytoplasm of the liver cells was in a granular condition.

Pancreas.—Gross pathologic changes of the pancreas were not noted in any of the animals. In the microscopic preparations there was a general interstitial edema present in all cases. The acinar cells were frequently found somewhat atrophied and were deficient in their basophilic staining properties. In nearly all cases zymogen granules were absent, and if present they were not discrete but appeared to be more or less fused. The pancreatic duct was filled with a finely granular staining fluid. The islet cells of Langerhans were degenerated, and some were disintegrated.

Spleen.—The gross appearances of the spleens of the inhalation animals and of those of the skin-absorption animals were different in that the former appeared pale and edematous, while the latter were highly congested and edematous. The microscopic picture in the case of the inhalation guinea pigs was that of an intense edema present both in the nodules and in the pulp. Occasionally a congested area was noted in which many red cells were laked. The sinusoidal endothelial cells were swollen; many of them were free in the pulp, showing but little phagocytosis. Both the sinusoidal and lymphoidal cells were degenerated.

Kidneys.—In the gross the kidneys were pale gray, but this was confined to the cortex and outer medulla, as revealed on sectioning. Cloudy swelling and degeneration of the cortex were noted. Microscopically, the most prominent changes occurred in the convoluted tubules and in the ascending limb of Henle, and particularly in the proximal convoluted tubules, a large portion of which were markedly degenerated and disintegrating, as shown in Plate I. The cells of the remaining portion, excepting the collecting tubules and the ducts of Bellini, showed varying degrees of granular degeneration. The

endothelial cells of the capillaries of the glomeruli were swollen and degenerated, and as a whole but little blood was present in the tufts. Serous exudate was frequently present in the capsular space, and occasionally hemorrhage.

Suprarenals.—As a rule the suprarenal glands in their gross appearance were found to be pale and slightly degenerated, but in a few cases they were congested and slightly hemorrhagic.

PHYSICAL SIGNS

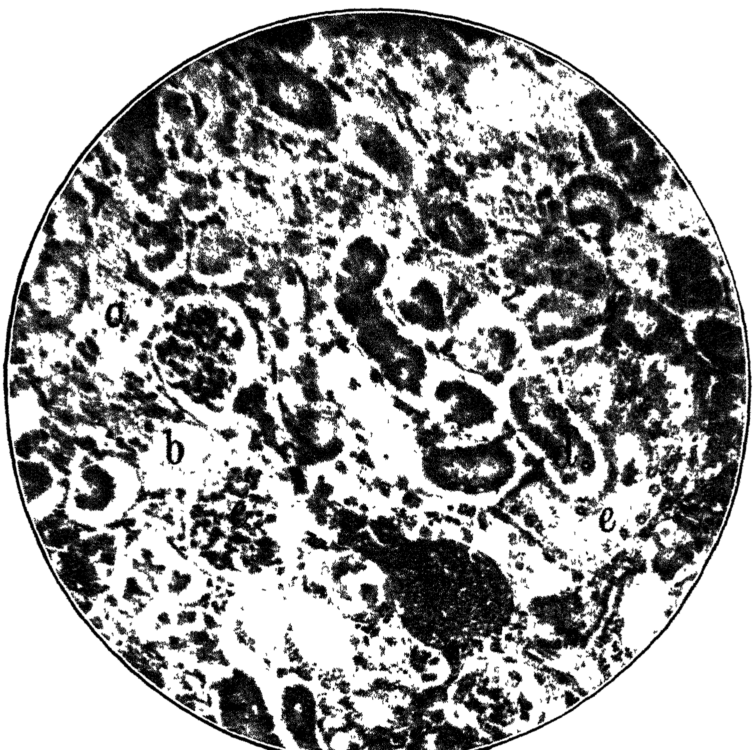
The ethylene dibromide vapors gave evidence of a nasal irritation in the guinea pigs, and the animals gradually became weaker. No evidence of myoclonic contractions were noted in these animals. In the experiments in which the material was applied on the abdomen the fluid produced a marked hyperemia of the small cutaneous blood vessels and the abdominal muscles became contracted and remained tense. In 20 minutes the reflexes became weak and the animal was scarcely able to stand erect; 10 minutes later the animals showed a slightly increased activity, which, however, was only temporary. The general appearance was that of great weakness.

COMMENTS ON FINDINGS

No attempts were made to establish the lethal dose of ethylene dibromide either by inhalation or by skin absorption. When these results were compared with those obtained by the authors in a few experiments on lead tetraethyl it appeared that the two compounds were of nearly equal toxicity. Ethylene dibromide, however, is not an accumulative type of poison and, hence, does not present as great a health problem as lead tetraethyl. Its hazards as regards its use in ethyl gasoline are mainly in the manufacture of the ethylene dibromide.

The action of ethylene dibromide was that of a general poison when judged by the pathologic findings. It attacked the specialized parenchymal cells of the various organs and the vascular system. The pathology of the former was that of a granular degeneration, most pronounced in many loops of the proximal convoluted tubules of the kidney, which had frequently advanced to nearly complete disintegration. The changes in the vascular system were a swelling and degeneration of the endothelial lining, which was particularly prominent in the splenic sinusoids and in the glomerular tufts. The alteration in the vascular system was manifested by the edema which occurred throughout the different organs.

These experiments indicate that ethylene dibromide is a distinct industrial health hazard, and can be detected by its odor and irritation of the skin and mucous membranes.



Kidney section of guinea pig exposed to ethylene dibromide vapors. (X 190)

(a) Disintegrating tubule
(b) Site of destroyed tubule filled with serous exudate
(c) Endothelial cells of glomerular tufts swollen, and serous exudate present in the glomerular space
(d) Cells of the proximal convoluted tubule detached from basal membrane in early stage of degeneration
(e) Lumen of proximal convoluted tubule filled with serous exudate

CONCLUSIONS

1. The vapors of ethylene dibromide are highly toxic for guinea pigs; 0.4 per cent inhaled for 1 hour produced death within 6 to 18 hours. The minimum lethal dose was not determined.

2. Ethylene dibromide applied on the skin is highly toxic for rats; 0.25 cubic centimeters applied on the abdomen produces death within 6 to 18 hours. The minimum lethal dose was not determined.

3. Animals that die as the result of acute ethylene dibromide poisoning have a pathognomonic putrid mushroom odor at autopsy.

4. Ethylene dibromide is a general poison that produces a granular degeneration of the parenchymal tissue of the kidneys, liver, suprarenals, pancreas, spleen, and heart, and produces a swelling and degeneration of the endothelial lining of the vascular system, with a tendency toward a generalized interstitial edema.

5. The most pronounced lesion noted was that of a marked granular degeneration and disintegration of many loops of the convoluted tubules of the kidney.

SOME SPECIAL FEATURES OF THE WORK OF THE PUBLIC HEALTH SERVICE

(Concluding articles of this series, the first of which appeared in the preceding issue of Public Health Reports)

TETRAETHYL LEAD INVESTIGATION

Everyone who has driven an automobile knows that a knock in the motor is something the average motorist wishes to avoid at all costs. Consequently, all motorists are interested in any method of preventing knocks. And thus it happened that, in 1923, when a new preparation known as ethyl gasoline was introduced to the motoring world, the event created widespread interest because it was advertised that this gasoline reduced motor knocks.

Ethyl gasoline is made by the addition of tetraethyl lead to ordinary gasoline. Tetraethyl lead, or lead tetraethyl, is a compound formed of one lead atom and four ethyl, or C_2H_5, groups; its formula is therefore $Pb\ (C_2H_5)_4$. A red dye and some other substances are put in the gasoline together with the tetraethyl lead.

The compound has been the subject of research work, particularly on the part of the General Motors Co. These investigations had demonstrated that the use of tetraethyl lead in gasoline brought about a change in the explosive characteristics of the gasoline somewhat similar to the change occurring when black powder is replaced by smokeless powder. Just as the smokeless powder gives a push to the projectile all the way to the end of the barrel, so tetraethyl lead gasoline, by reason of its comparatively slow explosive character,

gives a more constant pressure on the piston head in the power stroke. Both the motor industry and the gasoline producers were interested in this possible increased power and mileage, as well as in the conservation of the available supply of petroleum.

But this is only one side of the picture. Lead is probably the second most frequent cause of poisoning to-day. It ranks next to carbon monoxide, which is dangerous chiefly, if not entirely, on account of acute poisoning which may be rapidly fatal.

Poisoning from lead is slower and more insidious; and danger from this new distribution of lead was at once apprehended by those who had specialized in preventing risks of this sort. Furthermore, it was soon found that pure tetraethyl lead itself is an extremely dangerous and treacherous compound Fatal cases of poisoning began to occur in its manufacture and handling; and there can be little doubt that as long as tetraethyl lead is made, there will be some perils attending the use of the pure undiluted substance.

But it was not tetraethyl lead that was being sold to motorists; it was gasoline containing a small amount of "ethyl fluid," which, in turn, contained some tetraethyl lead. On account of the complexity and uncertainty of this problem—that is, the possible danger from the use of the dilute ethyl gasoline—the Surgeon General called a conference in May, 1925, as a result of which an investigation was carried out under the auspices of a committee of seven recognized authorities (Doctors Chesley and Leathers, and Professors Edsall, Howell, Hunt, Stieglitz, and Winslow) to solve the question which presented itself before every health officer as to whether the use of this gasoline should be permitted. A report was called for by January, 1926.

The investigation which followed demonstrated in a striking manner the value of a disciplined corps such as the Public Health Service. For the various phases of the work the services of chemists, physicians, statisticians, and specialists in other branches of science were required, and the Public Health Service was able to mobilize a force containing all of these men.

It would have cost well over $100,000 to conduct the investigation had it been necessary to employ all of these various experts for this particular occasion. As it was, the total cost was about $12,000.

To some extent the investigation was hampered by the fact that the Ethyl Gasoline Corporation had withdrawn its product from the market voluntarily, even before the conference was called. This action was of course salutary in the then uncertain status of the question, but it also tended to restrict the field investigation to one territory in southwestern Ohio, where the local distributing oil company had sufficient stock to continue to supply its trade despite the suspension by the Ethyl Gasoline Corporation. Fortunately, how-

ever, this was the very territory in which ethyl gasoline had longest been used; and through remarkable cooperation in this region examinations were possible of the various groups required to settle the point at issue.

In all, the investigators studied more than 250 individuals, divided into groups according to their exposure. The first group comprised men exposed to exhaust gases from ordinary gasoline, the second group those exposed to exhaust gases from ethyl gasoline, exposure in both cases being greater in degree than that of the ordinary motoring public; the third group were garage workers and gasoline handlers, not exposed to tetraethyl lead gasoline, and the fourth group, garage workers and gasoline handlers exposed to tetraethyl lead gasoline, not only in the intense concentration of exhaust gases in closed garages, but also in the spilling of leaded gasoline on their hands and clothing and in inhaling the evaporated fumes from repeated spillage on the floor.

Thus the second and fourth groups with ethyl gasoline exposure could be compared accurately with the similar first and third groups respectively, who were not exposed to ethyl gasoline. There was also a fifth group of men exposed to a definite danger from lead but still able to work. This group was studied in order to determine whether the methods used in the investigation would detect the slight amount of lead absorption or injury which was being looked for.

On the basis of the investigation the committee presented its conclusions, which were as follows:

1. Drivers of cars using ethyl gasoline as a fuel and in which the concentration of tetraethyl lead was not greater than 1 part to 1,300 parts by volume of gasoline, showed no definite signs of having absorbed lead after exposures approximating two years.

2. Employees of garages engaged in the handling and repairing of automobiles and employees of automobile service stations may show evidence of lead absorption.

In garages and stations in which ethyl gasoline was used, the amount of apparent absorption was somewhat greater than in those without ethyl gasoline; but the effect was slight in comparison with that shown by workers in other industries when there was definite danger from lead (the fifth group), and for the periods of exposures studied was not sufficient to produce lead poisoning.

3. In the regions in which ethyl gasoline has been used to the greatest extent as a motor fuel for a period of between two and three years, no definite cases have been discovered of recognizable lead poisoning or other disease resulting from the use of ethyl gasoline.

In view of these conclusions the committee reported that in their opinion there were no good grounds for prohibiting the use of ethyl gasoline of the composition specified as a motor fuel, provided its distribution and use were controlled by proper regulations which were to be drawn up by the office of the Surgeon General. The

committee also recommended that the investigation be continued, in view of the possibility that results which had not been apparent at the time of the investigation might develop after the use of ethyl gasoline for a more extended period.

Regulations have been drafted for adoption by the various States—since the control of such matters rests in the police powers of the States, not in the Federal Government. These regulations concern the manufacture and mixing of tetraethyl lead and the distribution of the gasoline. They have been followed by the companies concerned and thus far have proved entirely successful in the prevention of poisoning.

A further set of regulations deals with the broader field of automobile garages in general, repair shops, and filling stations. This set of regulations is aimed particularly at the much greater danger of carbon monoxide poisoning, as well as at the possible risk from leaded gasoline. Briefly these regulations provide that garages, etc., should have at least as effective ventilation as is provided by permanently open ventilators at ceiling level, free to the outside air, but protected from down drafts, with a cross-section area of two one-thousandths of the floor space available for automobiles, together with inlet openings near the floor level of corresponding size.

It is also provided that garages be kept clean by flushing out or moist sweeping, for one of the startling results of the investigation was the finding that there is a considerable quantity of lead present in the dust of ordinary garages, even where no leaded gasoline has been used. The regulations further provide that the following warning be displayed in the garages:

"Automobile exhaust gas is dangerous. Motors should not run longer than 30 seconds unless the car is in motion or the exhaust is directly connected to the outside air. Liquids sold as motor fuel, except ordinary gasoline, should be used only as motor fuel, and not for cleaning or other purposes. The fumes from the evaporation of even ordinary gasoline may be injurious."

MILK-BORNE DISEASES

Milk occupies rather a unique position among our articles of diet in that it is produced in nature solely for the purpose of serving as a food. It is especially adapted to the needs of the young and growing individual, but has been found highly beneficial to adults—the vigorous, the ill, and the aged.

Milk, however, is an excellent medium for the multiplication of many kinds of bacteria, including a number of those which produce disease in man. It is, therefore, imperative that milk be safeguarded against contamination with disease germs (sanitation), that it be so handled as to prevent their multiplication should they accidentally gain an

entrance (cooling), and, most important of all, that it be submitted to some process which will kill disease germs without materially altering the flavor and food value of the milk (Pasteurization).

Outbreaks of disease due to contaminated milk have probably occurred from time to time since man began to use the milk of animals for food, but records of these outbreaks are available for only a few years.

Various writers have collected records of 179 milk-borne outbreaks in the United States from 1881 to 1908. Dr. Charles Armstrong and Dr. Thomas Parran, jr., have compiled data on 574 additional outbreaks for the United States which were traced to milk from 1908 to 1926—a total of 753 recorded outbreaks from 1881 to 1926.

The number of recorded outbreaks by five-year periods shows a steady increase from 1880 up to the period 1911–1914, inclusive. The maximum number for any one year was 55 in 1914. Obviously these figures are not complete, as many milk-borne outbreaks have probably gone unidentified, while others have not been recorded; and, of those recorded, it is quite probable that not all have been located.

The compilations made do not include cases of bovine tuberculosis which occur sporadically, or scattered cases of infantile diarrhea which are, at least in part, due to improperly produced or improperly handled milk. Therefore, the figures mentioned must be considered a minimal estimation of milk as a disease carrier; but they serve as a cross section of the situation over a considerable period.

Protection of the milk supply, except in instances in which interstate quarantine may operate to prevent spread of a disease, is entirely a matter under the control of the State and local health authorities.

The Bureau of the Public Health Service is, however, vitally interested in the question; and through previous investigations, and through studies now under way, the service has been instrumental in pointing out certain important defects in pasteurization equipment and in bringing about improvements which will eliminate such objectionable features. The Public Health Service also has evolved a "model" milk ordinance which has been adopted by many States and a large number of cities throughout the country.

In addition to these activities the Public Health Service endeavors to serve as a sort of clearing house for the accumulation of information relative to the occurrence of milk-borne outbreaks of disease throughout the country. Inquiries are constantly being received on subjects related to the spread of disease through contaminated milk. Then, too, State and local health officials frequently seek the advice of the Public Health Service when local problems present themselves for solution. Frequently the Public Health Service has data and information gained from a study of similar situations in

other localities and, in any event, it is always glad to confer and cooperate with the local authorities and give them the benefit of any information it possesses.

The most common milk-borne outbreak in the United States during the past 18 years has been typhoid fever, of which reports of 449 instances with more than 14,000 cases have been collected. Four hundred and twenty of these outbreaks were attributable to milk, 26 to ice cream, 2 to butter, and 1 to cheese. In 20 instances the milk was said to have been pasteurized.

While typhoid fever led all other milk-borne diseases in the number of recorded outbreaks and in the number of persons actually affected during the past 18 years, it is probably second to septic sore throat, of which 35 outbreaks were recorded with an estimate of more than 20,000 cases.

There have been 40 recorded milk-borne outbreaks of scarlet fever in the past 18 years. These, like those of septic sore throat, have all been in the northern United States, the most southern being in southeastern Ohio. In two instances outbreaks were traced to pasteurized milk and in one instance to ice cream.

Records of 25 outbreaks of diphtheria were collected—one traced to pasteurized milk, one to certified milk, one to ice cream, and one to butter. These outbreaks were chiefly in the northern part of the United States, although there was one reported from Charlottesville, Va., and another from Austin, Tex.

Among other milk-borne outbreaks there may be mentioned 7 of paratyphoid fever, 8 of dysentery or diarrhea, 1 each of appendicitis, parotitis, poliomyelitis, and denguelike syndrome, 1 of Malta fever traced to goat's milk, and 1 of botulism traced to cheese.

Reports on 28 of the outbreaks attributed them to "pasteurized" supplies, but in 11 of the 28 instances there was evidence to indicate infection subsequent to pasteurization. In 3 outbreaks a possible substitution of raw for pasteurized milk could not be ruled out. In 3 instances there was evidence that the heating had not been to the specified degree; in 2 instances the so-called pasteurization consisted of heating the milk in a starter can; 1 of the reports stated that the equipment for pasteurization was obviously faulty; while in the remaining 8 outbreaks, 1 followed the flash method and in the others either the method of pasteurization or the source of infection was not stated.

It is apparent that these reported outbreaks do not constitute an indictment against what is usually considered adequate pasteurization in this country. They do, however, indicate the necessity for proper care in the construction of pasteurization equipment, in its operation, and in the protection of milk from infection subsequent to its pasteurization. The magnitude of the problem will be realized

when it is recalled that more than 7,000,000,000 gallons of milk are produced annually in the United States.

NUTRITIONAL DISEASES

The work of the Public Health Service on nutritional diseases of man has concerned itself mainly with pellagra. Indeed, it may be said that the work on nutritional diseases grew out of the study of pellagra, for in the beginning of that study it was not known that pellagra is a disease attributable to a faulty diet.

Pellagra has been known for nearly 200 years. At one time or another it has been particularly prevalent in Spain, northern Italy, Egypt, and the Balkan countries, where up to a few years ago, it was believed to be practically incurable and that it led inevitably to insanity and death. It was not known to occur in the United States until about 1908 or 1909. This discovery created considerable apprehension, particularly among physicians and sanitarians. The then Surgeon General of the Public Health Service, Dr. Walter Wyman, at once recognized the importance of the problem and assigned Dr. Claude H. Lavinder, an officer of the Public Health Service, to study the disease. Since then a number of other medical officers, statisticians, and sanitary engineers have for varying periods carried on investigations of one phase or another of the disease.

Although at first thought to be restricted in its prevalence to the Southern States, it has been found that it may occur, or has occurred, in every State in the Union and in the District of Columbia—so that the problem of pellagra in the United States is a national one. Its prevalence in the United States varies from year to year so that it is difficult to estimate the numbers attacked, particularly in view of the inadequacies of morbidity and mortality reports from certain States.

However, it is highly probable that in 1917, for example, there were fully 125,000 cases of the disease in the States south of the Potomac and Ohio Rivers alone.

When the disease was first recognized as present in the United States it was believed, following the lead of the Italian investigators, that it was due to the eating of spoiled corn; and although on the surface this theory seemed to be supported by the fact that the disease was more prevalent in the South, where corn is a much more important item of food than it is in the North, it was not long before increasingly strong doubts arose as to the validity of this theory.

In its place there began to arise an idea that the disease was an infection, particularly as such an idea had been strongly suggested by a distinguished British investigator who expressed the opinion that, like malaria, pellagra was due to the bite of an insect, in this case a Buffalo gnat.

The Public Health Service investigators took cognizance of these opposing theories when they began their studies, but the facts developed by them failed to support either of these views; they have been able to prove, instead, that the disease is due to a faulty diet, the primary fault being a deficiency in a food essential, probably of the nature of a vitamin, which has been provisionally named vitamin P-P (pellagra-preventive).

The Public Health Service investigations have resulted in showing also that this pellagra-preventing vitamin is one of at least two vitamins that were theretofore included under the term vitamin B. The research on pellagra has therefore resulted not only in determining the primary essential cause of pellagra, but in clarifying our knowledge of the cause of another nutritional disease, particularly common in the Orient, known as beriberi; for this disease is due to a deficiency of the second one of the factors heretofore included under the term vitamin B.

As the knowledge of the nature of pellagra resulting from these researches progressed, each advance was published, together with recommendations for the treatment and prevention of the disease. Once it was clear that the disease was due to a dietary fault, it was obvious that the remedy lay in a proper diet and this was early recommended and ever since has been persistently advocated.

The Public Health Service has cooperated and cooperates with State and local health officials and private agencies in carrying on a campaign of education designed to bring about a better knowledge of a healthful diet with the view of preventing not only pellagra but other possibly more obscure nutritional disturbances and thus of improving the health of the people.

This, even more than most campaigns for the improvement of the public health, is beset by difficulties arising from the fact that economic considerations play a most potent part in bringing about the the conditions that favor faulty diet and disease resulting therefrom. Moreover, our knowledge of the subject is not as yet sufficiently detailed to permit of much more than general recommendations.

Thus our knowledge of the distribution of the pellagra-preventing vitamin in our foodstuffs is only in its beginning. The investigations at present in progress are designed in a large measure to correct this defect in our knowledge.

It is believed that extensive laboratory investigations now under way will before long supply much of the needed knowledge with regard to food values.

ANIMAL DISEASES

The division of zoology of the Hygienic Laboratory is not a place where rare and ferocious animals are exhibited in cages for the amusement of onlookers. In fact, the only animals ordinarily in custody

of the division are preserved specimens. So far as material equipment goes, the division consists of a rather unpretentious laboratory, and an imposing collection of card-index files and books dealing with subjects in the field over which the division has jurisdiction.

Speaking of the field in which the division of zoology operates, recalls that the limits of that field are as hazy from an administrative standpoint as they are in nature. It is easy enough to say that the division is concerned with all zoological questions involving public health or diseases of man. But Nature herself has drawn no distinct line to determine where zoology ends and botany begins, and, likewise, there are many zoological questions which involve the health of both man and the lower animals and the line of demarcation is not always clear.

Indeed, it is very common to find that man and the lower animals present different phases in the life cycle of one disease. Theoretically, this division is expected to concern itself exclusively with questions involving human health, while the division of zoology in the Bureau of Animal Industry, Department of Agriculture, deals with similar problems affecting domesticated animals.

In practice, the work of the two divisions dovetails to a remarkable degree, although it is well recognized that it would be impracticable both from an administrative and a scientific viewpoint to consolidate the two units. It may be noted in passing that Congress provided for the Division of Zoology in the Department of Agriculture several years before it established this division in the Public Health Service.

When the Surgeon General of the Public Health Service requires information on some question involving zoology he calls upon this division. It is his information bureau in that field. It also acts as a clearing house for information for State boards of health, city health officials, and others interested.

One of the most important duties of the division is keeping up with the world's literature on medical zoology. A part of its activities toward that end was the preparation of an authors' catalogue which lists every known publication in every language in print at the time the catalogue was issued. This work is kept up to date by a card-index system. The authors' catalogue was prepared in cooperation with the division of zoology of the Department of Agriculture, and that department published the completed volume.

Supplementing the authors' catalogue there is a cross-reference subject catalogue and a host catalogue of the diseases of man and the domesticated and wild animals. The latter publications were prepared by the two divisions of zoology in cooperation and are published by the Public Health Service.

It is this elaborate system of catalogues which makes it possible occasionally to perform apparent miracles in the way of furnishing

information. There was an occasion in which a Cabinet officer sent in a request for the number of cases of trichinosis in Germany caused by eating American pork. The request was accompanied by the statement that the Secretary realized there would be a vast amount of research work involved and that it probably would require at least six months to get an answer.

Thanks to the proper indexing and cataloguing, it was possible to supply the information required in less than an hour after the request was received.

During the World War the entire division of zoology was called into service in connection with the sanitation problems created by the establishments of the large cantonments. A difference of opinion as to how far infection can travel underground and infect wells developed in connection with this work and as a result an interdepartmental and interuniversity board was appointed to make an investigation. The chief of the division of zoology of the Hygienic Laboratory was appointed chairman of this board.

The investigation began in 1919 and has just been completed. Prior to this investigation other workers had shown experimentally that infection could travel underground for about 10 feet laterally. The investigation by this board has demonstrated that chemicals placed in the ground can be detected 450 feet away, and disease germs were recovered in wells 232 feet away from the spot at which they were placed in the ground.

Governmental economy halted the investigation when these facts had been ascertained, but there was no evidence to indicate that the limit of transmission of infection in this manner had been reached. The experiments were carried on in a region where the underground water flow was only about 1 foot per day, while in other sections it is known that the rate of flow reaches a maximum of about 400 feet per day, indicating that infection would spread much more rapidly than it did in the area where the experiments were conducted.

The investigations also determined that it is the rise and fall of the underground water level in rainy or dry weather which filters out and eventually kills certain germs of disease. If it were not for this fluctuation of levels it would be practically impossible to find a well that was not infected, except, of course, certain deep wells. Professor Weinger, of the United States Geological Survey, cooperated in the ground water studies.

Immediately after the World War the division of zoology conducted an investigation which set at rest fears that amebic dysentery would be spread through the country by the returning soldiers. It was found that the percentage of returned soldiers carrying this infection was not higher than the percentage of those who had not been abroad.

The chief of the division of zoology, Prof. Ch. Wardell Stiles, is one of the two American governmental representatives on the International Commission for Zoological Nomenclature, the other official representative being Dr. L. Stejneger, of the National Museum, while Prof. David Starr Jordan, of California, is a nongovernmental American representative. This international commission of 18 members prescribes the regulations for naming animals, including the parasites which are the chief object of attention by the medical zoologist. The commission will hold its next triennial meeting in Budapest in August, 1927. Professor Stiles has been secretary of the commission since 1897, and for that reason the files and records of the commission are kept in the Hygenic Laboratory at Washington.

Most research work in medical zoology deals with parasites which cause diseases in man or other animals. It is not only the domesticated animals, the rodents such as rats, ground squirrels, and animals of the type which come in close contact with man that form a danger. There are diseases in the rhinoceros which may be transmitted to man, and there are diseases in fishes which frequently are transmitted. Even the snakes, crabs, and snails have parasitic diseases which sometimes find their way to man.

A study of the life cycle of the disease organism frequently leads to an investigation of sanitary conditions. This was the case in the hookworm investigation instituted by this division in which it was disclosed that about 50 per cent of the farms, and a very high percentage of rural schools and churches in the South, were without sanitary toilet facilities. It was, in fact, the studies of this division which interested Walter Hines Page in hookworm disease, and which eventually resulted in the financial support by Mr. Rockefeller of the hookworm campaign in the Southern States, a campaign which resulted in the present intensified public-health work in the South, and eventually was followed by the formation of the International Health Board.

The staff of the division of zoology of the Hygienic Laboratory at present consists of the chief of the division, 4 assistants, and 1 messenger. This is the normal staff, although during special investigations as many as 25 assistants have been employed. The assistants in this division are all college graduates who have command of at least two languages besides English, and who have a satisfactory knowledge of the fundamentals of zoology. The division as a whole does work in about 12 languages. It has been found that a reading knowledge of Latin is indispensable for workers in this division. All of the assistants are chosen under civil service regulations.

The division is prepared to answer inquiries on the following subjects: Diagnosis, treatment, and prevention of parasitic diseases; technical questions in zoological nomenclature; public-health questions dependent upon zoology.

MILK SUPPLIES

Milk sanitation became a definite part of the work of the Public Health Service with the beginning of cooperative milk control work with the Alabama State Board of Health in 1922. Most of the communities in that State had extremely unsatisfactory and potentially dangerous milk supplies, a condition true of most parts of the country.

The work first centered around an attempt to make milk-control methods uniform throughout the State by the introduction and enforcement of a standard milk ordinance which had been prepared by the Public Health Service. The work further involved a periodic determination of the sanitary milk ratings of communities so as to encourage effective enforcement.

Thus far the ordinance has been adopted in 17 Alabama communities, 14 of which have operated under it long enough to secure outstanding results, among which are a 142 per cent improvement in milk sanitation and a 90 per cent increase in the sales of market milk. Attention of other cities and States was attracted by the success of the milk work in Alabama and the demand for information became widespread.

Accordingly, the milk ordinance gradually became known as the United States Public Health Service Standard Milk Ordinance. The first steps toward a national unification program were taken in 1923, when the State of North Carolina adopted the standard milk ordinance. Since that time 13 States and 117 cities have adopted the ordinance, and surveys to determine the sanitary status of the milk supply have been carried on in over 150 communities. The States which have adopted the standard milk ordinance are, in their order of adoption, as follows: Alabama, North Carolina, Texas, Virginia, Tennessee, South Carolina, Missouri, Kentucky, Arkansas, Louisiana, Utah, Mississippi, West Virginia. Several other States are contemplating a future adoption of the ordinance as funds and personnel permit.

The present program is divided into several parts, as follows:

(1) Unification of milk control in the United States.

(*a*) Study of the state-wide milk sanitation problem.

(*b*) Encouragement of States to adopt one standard program subject to amendment by majority vote at periodic State conferences.

(*c*) Advisory assistance to States.

(2) Periodic measurement of progress of milk sanitation in the United States.

(*a*) Studies of methods of measuring the milk sanitation status of cities.

(*b*) Periodic determination of milk sanitation ratings of cities.

(3) Special investigations.
(*a*) Milk-borne disease prevalence.
(*b*) Design and operation of pasteurizing machinery.
(*c*) Sterilization of milk utensils and equipment.
(*d*) Refrigeration.
(*e*) Miscellaneous.

The Public Health Service unification program includes the following two elements of relationship between the cities and States and the Public Health Service.

(1) The State is advised, upon its adoption of the Public Health Service program, to have one of its milk-control officials visit each standard ordinance city in the State at least once during each grading period, and check the accuracy and uniformity of the inspection and the laboratory and grading methods. This should give the assurance to the city officials and to the dairy industry that uniform enforcement methods are being followed throughout the State.

(2) A Public Health Service officer is detailed to each State operating under the program each year for a period long enough to coordinate the State's interpretation of the standard ordinance with that of the other States, and to determine jointly with the State the milk sanitation ratings of the various cities operating under the standard ordinance.

This plan is one which gives the maximum assurance of continued uniform enforcement of the standard ordinance, and which gives a scientific measure once each year of the relative progress made by the various cities operating under the ordinance.

Application of the Public Health Service standard program has brought about certain changes which have been observed as follows:

The enforcement of the ordinance has been followed by an improvement in milk sanitation, and an increase in the volume of market milk sales.

It has elicited the support of the dairy industry.

It has been enacted and enforced by many different types of cities and has successfully met rigid tests and criticisms.

In a large number of the cities now operating under the standard milk ordinance the passage of the ordinance was urged by the dairy industry itself.

This last fact has been one of the most gratifying features of the work. The support which has been accorded the present program by the dairy industry is accepted as evidence that that industry is progressive and is mindful of its responsibility for the health of its patrons. Indorsement of the program has been given by the dairy industry and by one of the largest life insurance companies.

On May 25, 1926, the standard milk ordinance of the United States Public Health Service, slightly modified, was adopted as a

standard for the United States by the Conference of State and Territorial Health Officers.

On November 17, 1926, the public health section of the Southern Medical Association, at its annual meeting in Atlanta, Ga., adopted a resolution to petition Congress for a special appropriation for the promotion of the milk sanitation program throughout the United States.

The Public Health Service is now engaged in carrying on some special investigations supplementing the activities associated directly with the proper enforcement of the standard milk ordinance as follows:

(1) Milk-borne disease prevalence.

In 1924 a questionnaire survey was made of milk-borne outbreaks occurring in the registration cities of the United States during the six-year period 1918 to 1923, inclusive. In 1925 a questionnaire survey was made of milk-borne outbreaks occurring in 1924. These surveys showed that between 40 and 50 outbreaks of milk-borne diseases are occurring each year in the United States. It is planned to continue these surveys from year to year in an effort to secure accurate information on milk-borne disease prevalence and to urge the adoption of preventive measures by health officials and dairymen.

(2) Design and operation of pasteurizing machinery.

The United States Public Health Service believes that pasteurization of milk is the most potent single force operating to prevent the transmission of milk-borne disease. It is further believed, however, that certain corrections should be made in the design and operation of pasteurization apparatus and machinery so that it may more nearly accomplish efficient pasteurization of all milk which enters it.

It is also believed that greater uniformity in the definition of pasteurization is advisable. A study of present-day definitions in numerous milk ordinances revealed the fact that some of them, if actually enforced as intended, do not insure uniformly effective milk pasteurization. Some of them, though theoretically effective, can not be effectively enforced without more information than is at present available to local health officers. Other definitions of pasteurization, if strictly enforced as intended, will partly or completely destroy the creaming ability of the milk. This fact has a commercial aspect which is recognized by milk dealers.

The Public Health Service is at present engaged in a detailed study of the design and operation of milk pasteurization apparatus and machinery and of temperature control and recording devices. The object of the study is to secure basic facts which may assist milk-control officials in their efforts to formulate proper definitions and

specifications with the eventual result that pasteurization methods will be improved.

The plan of work embraces factors which might affect the actual temperature of all milk entering or leaving or held in different types of pasteurizing apparatus. Among such factors which are to be studied are "cold pockets," foaming, valve leakage, agitation, and insulation. The plan of work also includes a study of the installation and operation of temperature indicating, recording, and control devices.

In the testing work, temperatures are being determined electrically by means of the thermocouple and potentiometer principles. This has many advantages over the ordinary thermometer method. The interest which has been manifested in these studies indicates its importance to equipment manufacturers and to milk-control officials.

The testing work on pasteurizing apparatus and machinery thus far done by the United States Public Health Service has disclosed many defective types of apparatus. It has also disclosed the fact that certain makes of apparatus are properly designed. As a result of the testing work many makers of apparatus have instituted changes in design and installation, and corrections have been made in apparatus already installed.

SALT-MARSH MOSQUITOES

Man's progress in civilization may be said to be measured by his successful battles with other forms of life.

In the beginning it was the larger animals that he feared—the prehistoric monsters which could crush him and devour him. But on the day when an early cave man first grasped a rude club to beat off some animal rival for his food, there began a procession of events which sealed the doom of the monsters. As man utilized his mental prowess to develop weapons of ever-increasing efficiency, as he progressed from club to spear, to bow and arrow, to crossbow, to primitive firearms, to modern repeating rifles with high-explosive shells, the larger animals faded from the picture.

To-day, so far as civilized man is concerned, they are mere adjuncts to his recreation—something to be hunted in his leisure time. But it has long been recognized that when man conquered the huge carnivorous animals he had only just begun his battle with the nonhuman forms of life on earth. He must battle also with the insects and with those microscopic organisms known as bacteria.

And, among the insects, there can be little doubt that one of man's worst enemies is the mosquito.

Large areas of the coastal sections of the South Atlantic and Gulf States have repeatedly been rendered uninhabitable by hordes of buzzing, biting mosquitoes that build their homes and raise their

broods in the salt marshes. So far as is known, most of these mosquitoes do not carry diseases and, hence, they have not received the attention which has been bestowed upon the *Anopheles* and the *Aedes*, purveyors, respectively, of malaria and of yellow and dengue fever.

The summer and fall of 1925 brought a tremendous influx of the salt-marsh mosquitoes to the doors of residents, to industries, and to developmental activities. Never before had the insect pests been so numerous or annoying. The normal activities of man in the affected areas had to be subordinated to fighting the mosquitoes; and it seemed that, in some communities, the very wheels of Government would cease to revolve because every one was occupied with the hordes of buzzing pests.

Congress recognized the problem of the salt-marsh mosquito as one involving the general welfare of the people and made an appropriation of $25,000 becoming available in July, 1926, to make a "preliminary survey of the salt-marsh areas of the South Atlantic and Gulf States to determine the exact character of the breeding places of the salt-marsh mosquito, in order that a definite idea may be formed as to the best methods of controlling the breeding of such mosquitoes." It was specified that the work be done by the Public Health Service with the cooperation of the Bureau of Entomology of the Department of Agriculture.

After a brief reconnaissance survey, headquarters for this work were established in the Federal Building, Biloxi, Miss. An office and laboratory were soon in operating order and experienced assistants were transferred to this work. From this station a study in minute detail is being made of breeding, flight, and other habits of the salt-marsh mosquitoes. The work is being carried on the year round so that information applicable to all seasons of the year may be made available.

It was a happy choice by which Biloxi was selected as the headquarters of the survey, for in that city is located base 15 of the United States Coast Guard, which has rendered valuable assistance in reaching the outlying islands and the extensive marsh areas along the Gulf Coast. Health authorities, civic organizations, State and local chambers of commerce, county and municipal officials in many sections also have proffered their cooperation. Already in the course of the research, much valuable information has been obtained concerning mosquitoes of the malaria-bearing family. These results in themselves would justify the survey.

Although there are millions of acres of salt marshes in the South Atlantic and Gulf States, the Public Health Service does not feel that the task it has undertaken is a hopeless one. To begin with, these marshes vary widely in character, and it has been found that

only a small proportion in many sections actually produce mosquitoes. Hence, one of the first objectives of the survey is the classification of the marshes according to tidal and other influences which have a direct bearing on mosquito development. The service hopes to obtain data on egg laying, larval (wiggle tail) and flight habits, and to be able to present a formidable program for the salt-marsh mosquito eradication when several seasons of research have been completed.

To one familiar with the various angles of a problem of this nature its solution might seem either simple or too complex for study. As an illustration, on one occasion, while discussing the various phases of the survey at a luncheon club, the officer in charge was asked why it was necessary to study the habits of the mosquito, "for," the inquisitor said, "they have only one habit that I know of, and that is biting."

Biting is no more the sole habit of mosquitoes than is eating by man. The fact is, the life cycle of the mosquito is more complex and varied than that of the highest order of animals—man himself. To permit this infinitesimal, buzzing creature to preempt and rule some of the choicest sections of the southland would be to admit defeat of man's ingenuity, science, and skill.

It is expected that new methods of control soon will be inaugurated on the basis of information gained by the survey now in progress.

CHILD HYGIENE

The Public Health Service has contributed to the advance in child hygiene in two ways: (1) Indirect or general sanitary measures, and (2) direct or special activities.

The activities of the Public Health Service which have had a beneficent effect on the health of children include all those which have helped to improve the general welfare. Sanitary engineering, with the production of a pure water supply, has had a most important bearing on the reduction of diarrheal diseases in children. The pioneer work of the service in that field aided materially in improving the water supply.

Trachoma investigations were begun in 1912. About 175,000 school children were examined, and it was found that 1.4 per cent had trachoma. In some schools 30 per cent of the children were afflicted. Special hospitals were established at strategic points in the heavily infected districts for the treatment of trachoma. Field clinics were held in many States and thousands of cases were treated. Instruction in care and prevention was given. The preservation and restoration of vision in children and adults was of great economic value, and the general instruction in hygiene was of great value in health protection.

The extensive program for malaria control which has been carried out by the service has had a decided beneficial effect on the health of mothers and children residing in malarial districts.

The safeguarding of milk supplies has an inestimable value in the prevention of certain diseases in infants and children. This principle is of utmost importance in a health program. In 1908 the service published "Milk and Its Relation to the Public Health," a noteworthy contribution to the health education literature. This bulletin was widely distributed and it aided materially in the adoption by State and local health officers of more adequate measures for safeguarding milk supplies. The vastness of this problem may be realized when we know that there are approximately 10,000,000 children of 5 years of age and under in the registration area of the United States and whose principal article of diet should be wholesome cow's milk.

The Public Health Service is now actively prosecuting studies, the effect of which is already shown in the very widespread effort to secure milk in larger quantities and of approved sanitary quality for the use of the public.

The service supervises and controls the manufacture of biologic products so largely used in the prevention and cure of a number of the communicable diseases of childhood. The maintenance of the potency and purity of these products is an important factor in the protection of child life. Toxin antitoxin is our most potent aid in preventing diphtheria. The use of the antitoxin in the cure of the disease has saved thousands of lives and untold suffering. The death rate for diphtheria dropped from 43.3 per 100,000 population in 1900 to 12.1 per 100,000 in 1923. The service carried out the difficult task of preparing and preserving a standard diphtheria antitoxin unit which is essential to the control and production of diphtheria antitoxin.

The identification of the American species of hookworm was made by an officer of the service and led to the control of hookworm disease, which afflicted so many thousands of children in certain parts of the country.

The special child hygiene activities of the service are carried on under the provisions of the act of August 14, 1912, vesting the Public Health Service with authority "to study and investigate the diseases of man and conditions influencing the propagation and spread thereof * * * and from time to time issue information in the form of publication for the use of the public." This restricts the service activities, which may be classified under the two general headings: (1) Education and (2) research.

In the field of education the work consists, broadly, in the distribution of educational material prepared by service officers, usually

based on results of special investigations. More than 70 articles and pamphlets on child hygiene and related subjects have been published by the service.

In 1915 there were but five States with bureaus of child hygiene in operation. In 1919 there were but 15. For this reason, prior to the enactment of the Federal hygiene of maternity and infancy law, the service carried on extensive investigations in child hygiene administration in several States for the purpose of advising and assisting in the organization of child health administrative work. The results of this research work were gratifying in that these investigations were a very large factor in stimulating popular interest in and creating a demand for better health protection.

Dried milk.—Special studies made by the service indicated that dried milk powder of the proper kind is a safe substitute for cow's milk in those places where fresh cow's milk is not available.

The relation of physical handicaps to the state of nutrition.—A group of 200 children was selected from 1,500 underweight children. These children were given no other attention than the correction of physical defects. They then gained weight at a more rapid rate than the normal average.

Mouth hygiene.—Decayed teeth and septic mouth conditions contribute a large majority of the physical defects of school children. Mouth hygiene stands in the first rank of measures for the conservation of the health of the child. The service has studied the dental conditions of 30,000 children in 11 States with the view of evaluating the effect of dental decay and mouth sepsis on growth, development, and school progress. These investigations have stimulated the interest of communities in providing facilities for dental care of children.

Height and weight.—Several different standards of physical development of children are in use in this country. All of these are liable to error when applied to individual children.

The service has made careful studies of over 15,000 children to measure the value of the height-weight ratio as an index of physical fitness. The results of these studies show that the nutrition of an individual child can not be judged solely by comparing his weight with the weight given in a special table. A physical examination is necessary to judge whether or not he is properly nourished.

To attempt a more accurate measurement of physical development, special anthropometric data have been collected on 30,000 children of the third generation, native-born white children, in 21 representative cities and 19 States.

School hygiene.—Sanitary survey of school buildings was included in certain epidemiological studies. The physical condition of the school children was also included. The service has contributed a great deal in standardizing school medical inspection, devising forms

for recording data, improving "follow-up" service to the homes, and obtaining the interest of child and parent.

Illumination.—Special research studies were made in natural illumination of schoolrooms. The results and recommendations of these studies were published in Public Health Bulletin No. 159.

Health education.—A special bulletin was prepared on the program of the several States in health education as given in their public schools.

School vision.—A special study of the visual defects in school children is now being carried on. This study is made to determine—

1. The incidence of visual defect in school children.
2. The significance of the varying degrees of refractive error.
3. The progressive change in the eyeball with advancing age.
4. The degree of myopia which may require special educational methods.

Mentally and physically handicapped children.—More than 8,000 children were examined mentally and physically in cooperation with the Illinois State Institute for Juvenile Research.

Mental hygiene.—A mental survey of over 50,000 children attending 663 schools and in 10 institutions in a number of States. The percentage of feeble-minded in the school population ranged from 0.3 per cent to 1.3 per cent.

Physical and mental states of negro school children.—There are approximately 2,000,000 negro children from 5 to 14 years of age in this country. Little is known of their physical and mental development. A special mental and physical study of about 3,000 colored children in Georgia is now being made.

Growth and development.—Special studies in the growth and development of children have been carried on in a selected community for several years. The results of these studies will furnish most important information on the growth of children.

The child hygiene office of the Public Health Service is prepared to answer inquiries on the following subjects: Prenatal care, care of the baby, physical and mental hygiene of the child, and school hygiene.

STANDARDIZATION OF DRUGS

The division of pharmacology of the Hygienic Laboratory, Public Health Service, may be considered one of the connecting links between abstract science and the application of science to the practice of medicine. A part of its function, as its name implies, is the determination of the action of drugs upon human beings as revealed by experiments on animals. The scope of the functions of the division can best be indicated by illustrations.

One of the activities in which the division is now engaged is an effort to standardize a group of products used in the treatment of

certain pathological conditions and for which chemical criteria of potency are not practicable, at least, from the standpoint of commercial production. An effort is being made to standardize these products through biologic tests. Included in this group are the following: The arsphenamines (antisyphilitic remedies), for which a special control under the biologics control act has been provided; insulin, used in the treatment of diabetes; digitalis, used in the treatment of certain diseases of the heart; and pituitary extract, used extensively by obstetricians to induce labor in childbirth and to overcome postpartum hemorrhages.

It is the function of the division of pharmacology to work out methods for determining the potency of these various products—the actual work of putting these standards into effect being the function of other officials of the Public Health Service, the Bureau of Chemistry of the Department of Agriculture, and State and municipal officials. The United States Pharmacopœia has adopted the standard of potency for pituitary extract and the biologic tests for arsphenamine and neoarsphenamine worked out by this division.

The importance of an accurate scientific standard in the terms of which the potency of each ampule of the various products may be stated is obvious when it is considered that the physician who prescribes or administers such remedies must have knowledge of the probable effect of his prescriptions. The health committee of the League of Nations has called two international conferences to discuss standardization of medicines such as those mentioned, and Prof. Carl Voegtlin, chief of the division of pharmacology, attended these conferences, in an unofficial capacity, as one of the American delegates.

Another problem which has received considerable attention from the division deals with the development of chemicals which may be used as specifics in the treatment of various infectious diseases, the type of treatment known as chemotherapy. As a part of this work experimental syphilis has been produced in rabbits, and one result from this series of experiments was the development of a method of producing a drug known as sulpharsphenamine, a product used in the treatment of syphilis, and which has the advantage that it may be injected hypodermically into small children or intramuscularly in those adults for whom intravenous injections are impracticable.

The division, furthermore, has discovered new facts concerning the complicated manner in which the arsphenamines sterilize the body infected with syphilis and related diseases. This is a question of real pertinence, inasmuch as arsphenamine and its derivatives even in concentrated solutions will not kill these organisms in a test tube but will kill them in the body.

The newly discovered facts strongly support the idea that arsphenamine is converted in the body by partial oxidation into an active

modification which is responsible for the sterilizing effect and which must also be regarded as the immediate cause of some of the toxic reactions sometimes resulting from arsenical treatment. Effective methods for the prevention of these serious toxic reactions have been discovered, and further efforts are being made to render the arsenical treatment as safe as possible.

A study of cancer in its broad aspects is another of the problems now before the division of pharmacology. This investigation proceeds on the theory that cancer is an abnormal tissue growth. On this hypothesis the division has been experimenting with the growth of tissue from the heart muscle of an embryo chicken outside the body on the theory that a knowledge of the processes of normal cellular growth may aid in an understanding of abnormal growths.

Another phase of this work has been the successful transplanting of animal tumors from one animal to another, which revealed that the tumors which afflict one species will not grow in another species. Even in the case of animals so closely related as rats and mice the tumors transplanted will develop only to a very limited extent.

This fact, together with other evidence, has tended to establish the conviction that such a thing as a "cancer parasite," or an organism which specifically causes cancer, does not exist.

Some of the causes of cancer have been indicated by experiments on animals; notably the demonstration that painting the skin of rabbits or mice with coal tar for long periods will produce growths which are apparently real carcinoma.

It has also been shown that the presence of certain parasitic worms will produce cancerous growths in rats, and there is evidence, although it is not conclusive, that a continued application of arsenic to the skin will produce the same results. Animals bearing tumors are subjected to treatment with a great variety of chemicals with a view of finding a substance that will destroy the malignant growth.

Those who have worked on cancer in the Hygienic Laboratory have for the most part accepted what is now the prevalent opinion among investigators, that the distinction which should be drawn between the so-called benign and malignant growths is merely a difference in the rate of growth.

Still another phase of the cancer research work for the division is a study of the chemistry of normal tissue and a comparison of the data thus gained with corresponding data obtained from a study of the chemistry of cancerous tissue. Some evidence has been found to indicate a difference in the sugar metabolism, but nothing definite has been established.

In addition to the activities heretofore enumerated, the division of pharmacology is also engaged in a piece of research so fundamen-

tal in character that it can hardly be explained in nontechnical language. This is a study of the toxic action of various drugs upon living cells. At present the crude results of these actions are known in many instances, but the more intimate chemical nature of the actions is not known. It is a problem that involves the very fundamentals of pharmacology and toxicology.

The normal staff of the division of pharmacology consists of eight scientific workers, besides clerical assistants and attendants.

SERUMS AND VACCINES

When the family physician in a small rural hamlet vaccinates the children of the neighborhood to protect them against smallpox, or minimizes the danger of diphtheria, he introduces into their systems substances which, if contaminated, might injure the children seriously and which, if not potent, will give no protection. Hence it is obviously very important that the physician have some assurance that the vaccines and antitoxins he uses are exactly what they purport to be and are not contaminated by any impurities.

If the physician happens to be also a chemist and a bacteriologist, and if he has the time, money, and inclination, he could assure himself on this subject by maintaining a laboratory of his own and testing all the vaccines or serums before he administers them. But if he did that he would have little time left to administer the products and, in any event, he seldom has the equipment and frequently does not have the training in chemistry and bacteriology which would insure accuracy of results.

Furthermore, there would be a tremendous waste of time and money if every physician were obliged to make these investigations for himself.

Obviously, the solution of the problem is a system of control of the manufacture and sale of such biologic products as will enable the physician to use these products without testing them and, at the same time, with confidence that the health of his patients is being protected. The United States Public Health Service, through the office of biologic products control in the hygienic laboratory, administers such a system.

This system of control was established by an act of Congress in 1902, about the time when the use of vaccines and similar products began to attain prevalence. In general the procedure is to license certain manufacturers to make specific products if the manufacturers comply with requirements laid down by law and regulations and if their products meet prescribed standards.

The products covered by the law and regulations—viruses, serums, toxins, antitoxin and analogous products applicable to the prevention or cure of diseases of man—are collectively referred to as

biologic products and by their very nature are particularly prone to become contaminated, or, in some instances, rapidly to lose their curative properties. It was because of these peculiar properties of this class of products that the necessity for some method of accurate control of their manufacture and sale was early recognized.

Licenses issued by the Secretary of the Treasury on recommendation of the Public Health Service are sought by foreign manufacturers of biologic products as well as by the American manufacturers. To the latter such licenses are an absolute necessity because without a license no manufacturer can offer his products for sale in interstate commerce or for export. One standard is adopted for all products regardless of whether they are intended for domestic or foreign consumption.

This single high standard has resulted in the American license to manufacture biologics being accepted as a hall mark of quality wherever such products are used. It is for this reason that the foreign manufacturers seek American licenses even though they may have no intention of competing with the American manufacturer in the American market.

At the close of 1926, 36 American manufacturers and 11 foreign establishments held American licenses to manufacture biologic products. The foreign manufacturers include the Pasteur Institute of Paris and others of high standing.

The Federal Government is not engaged in the manufacture of biologic products, efforts being directed to control only. Competition between manufacturers is free, subject only to minimum standards imposed by the licensing authority; for it should be remembered that the standards set by the regulations controlling biologic products are minimum standards, and manufacturers are not only permitted, but encouraged, to exceed these standards in the potency of their products.

Before a manufacturer, either domestic or foreign, is licensed by the Secretary of the Treasury, an inspection is made by a commissioned officer of the Public Health Service. The inspection covers plant, personnel, and product. The license will not be issued unless it is shown that the manufacturer has an adequate plant in proper condition, that his personnel is competent, and that his product meets the standards set by the Public Health Service.

Domestic manufacturing plants are inspected at least once a year after the license has been granted, and foreign biologic products are inspected at customs ports before they are admitted to the country. Laboratory examinations of products of all manufacturers are made at more frequent intervals.

The Hygienic Laboratory has the custody of the diphtheria and tetanus antitoxin standard units—samples of these products of known

strength—and at regular intervals the laboratory distributes these two products to other laboratories and manufacturers throughout the world to serve as a standard of comparison for the products manufactured by them. This arrangement has been in effect for about 20 years and is carried on by common consent.

The granting of a license to a manufacturer does not imply indorsement by the Public Health Service of all the claims which the manufacturer may make for his products. An effort is made to distinguish between products concerning the value of which there may be a difference of opinion among the best authorities, and absolute frauds which may also be harmful to the patient. As an example of the former may be cited many bacterial vaccines used for treatment or prevention of disease, and while the question of value of these products is being determined, the public meanwhile is assured a properly prepared product.

It would be a serious matter to refuse a license for a product if the claim advanced that it would be of aid in combating some disease were valid. Great care is accordingly exercised before a decision is made.

At present an exhaustive investigation is being made to determine the accuracy of claims advanced on behalf of an antimeasles serum produced from the blood of animals. This serum, if it should prove to be effective as claimed, would be of inestimable value in combating measles in young children. In extreme cases where the question of proper procedure in the matter of license is very difficult to determine, the opinion of the advisory board of the Hygienic Laboratory may be obtained. This board is composed of nine members, all nationally known authorities.

The granting of a license means that inspections of the establishment concerned and laboratory examinations of samples of its products are made regularly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination, and to determine the potency of diphtheria antitoxin, tetanus antitoxin, botulinus antitoxin, antidysenteric serum, antimeningococcic serum, antipneumococcic serum, bacterial vaccines prepared from typhoid bacillus, paratyphoid bacillus A and paratyphoid bacillus B, diphtheria toxin-antitoxin mixture, and diphtheria toxin for Schick test, the only products for which potency standards or tests have been established.

OXYGEN AS REGARDS LIFE

Political prisoners and professional fasters have been known to live for months without food. Explorers and ships' crews have survived for days without water. Complete deprivation of oxygen would mean death to the human machine in a few minutes.

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This importance of oxygen has dominated the thought of physiologists ever since the discovery of oxygen as the most significant element in our atmosphere; but even to-day the manner in which oxygen, once it is brought to the cells, enters intimately into the chemistry of life is so obscure as to be a subject of controversy.

The division of chemistry of the Hygienic Laboratory has found that several chemical processes which have been thought to be intimately related to oxidation in the living cell are not necessarily dependent upon the participation of oxygen, or for that matter, upon the element hydrogen which is supposed to be involved whenever oxygen acts to form water. Instead, these processes are essentially exchanges of certain of the electrons contained in the substances taking part in the processes.

A noteworthy example is the bleaching of indigo, formerly accomplished by bacterial fermentations, and now accomplished with certain chemicals called reducers. Essentially this type of bleaching is the driving of a pair of electrons into the dye molecule. The structure is then so changed that the substance no longer absorbs visible light and hence is colorless. By a well-known electrical device, applied hitherto to inorganic compounds, the division of chemistry is measuring the driving forces with which one set of organic compounds, such as indigo and its reduction product, tends to transfer its electrons to another set. It is thus building up a body of quantitative data with which there can be predicted in exact quantitative language the direction and extent of these electron transfers between specific sets of substances.

The division has also measured directly, and indirectly, by the use of the dyes it has studied, the driving force with which several species of living cells tend to alter organic compounds in the direction of a greater ease of electron escapement. In certain cultures of bacteria, which are accustomed to live in the absence of oxygen, this driving force is found to be the highest which it is theoretically possible to attain without disrupting the molecules of the water in which the bacteria live. Workers in Europe are injecting into living cells the dyes, the electron affinities of which are now known from the studies of the division of chemistry.

This "micro surgery" is being done with instruments designed by Professor Chambers, of Cornell University, and is so delicate that high-power microscopes are necessary to watch the manipulation. If the results are confirmed they will necessitate radical revisions of the methods of attacking what the physiologists regard as the chief problem, namely, the manner in which oxygen enters the chemistry of life.

By the irony of fate the newer developments have deprived the physiologists of some of their favorite tests, but they have made these

tests the subject of a new field of research—that of electron exchanges in which oxygen may never be directly involved.

While the chief accomplishment to date is a partial clarification of the confused and highly technical concepts which are concerned in this vitally important physiological subject, several incidental matters of some immediate importance have been studied. By the methods employed there are revealed exact data, hitherto unattained, concerning the chemistry of some common dyes and of new dyes which the division has designed and synthesized to fit its particular purposes.

By use of the concepts developed there has been gained an insight into the action of certain "oxidative" disinfectants such as iodine and chlorine, the latter being used extensively to lower the bacterial contamination of water supplies.

In this connection it may be said that it was clear to the chemists of the division of chemistry before studies of the "chlorine cure for the common cold" were begun systematically, that, irrespective of any indirect benefit which might be found, there could be no significant disinfectant action by chlorine used at reasonable concentrations. The detoxifying action of the organic matter of water supplies is being studied with a view to increasing the efficiency of control in dosing water supplies with chlorine.

The data now at hand concerning the nature of certain chemical transformations brought about by those microorganisms accustomed to living without the benefits of oxygen provide a new basis from which to survey the life of these strange living things. Some of these so-called anaerobes are the most virulent of man's enemies, and their cultural management is part of the daily routine of disease control.

Few of these practical applications have as yet been brought to full fruition, because almost the entire time of the small staff of the laboratory has been devoted to the theoretical aspects. The careful establishment of reliable data and the painstaking development of theory, the terms of which are too technical and too guarded for purposes of brief description, are essential; the more so since the abundance of practical applications which are appearing have already tempted others to venture where the way is not prepared.

In addition to researches on the subject outlined, the division has synthesized some new indicators useful in determining the intensities of acidities (technically the hydrogen ion concentrations) of biological solutions. It has developed a new test for cysteine, a substance which alone or in combination is very important in the oxidative and defensive mechanisms of the body. It has contributed to the theory of water clarification by alum with resulting savings in the alum bills of several municipalities. It made the chemical analyses in the recent investigation of possible hazards in the use of tetra-

ethyl lead. It has developed a new test for phenols, of which carbolic acid is a representative, and has described the essential chemistry of numerous other tests in a comprehensive review of the literature.

It is attempting to supply the biologist with a rational account of a certain type of color test used in the differentiation of cells, and known as the indophenol test. It carries on routine analyses of the arsenical preparations used in the treatment of syphilis and the manufacture of which is licensed by the Treasury Department, and it is developing new methods of analyzing these preparations with a view to stricter control.

Essentially the division of chemistry is a small research unit of nine active investigators, in which there exists an appreciation of the rapidity with which existing knowledge of the chemistry of living cells is exhausted in attempts to solve some of the more baffling problems of medicine and public health. It therefore concentrates its chief activity upon the problem first mentioned in this sketch with the confident hope that the solution will be of fundamental importance to very many problems of biochemistry and medicine.

STREAM POLLUTION

Wherever a human being lives, there is a problem of sewage disposal, and also a problem of drinking water supply. From time immemorial man has used the rivers, streams, and lakes to solve both problems; and nature, through processes which are not yet fully understood by science, has done much to minimize the obvious dangers of such procedure.

But there is a limit to nature's capacity to purify sewage-contaminated water; and as the density of population increases with the advance of civilization, the dangers of using the same stream for sewage-disposal plant and water supply increase tremendously. Unless science comes to the aid of nature, man will have to seek other safe methods of sewage disposal or else find other sources of water supply. Either alternative presents important economic difficulties.

The importance of the problem will be realized upon consideration that between 85 and 90 per cent of the sewage of all the cities in the United States is discharged without treatment into the most convenient stream. And the percentage of cities which utilize these same streams for their supplies of drinking water is probably as high as is that of the total amount of sewage discharged into the streams.

It is unnecessary to point out the menace to public health involved in practices of this kind, and for the past 16 years the Public Health Service has been engaged in work designed to minimize this evil. The actual solution of the problems depends, of course, upon the cooperation of the various local governments, State and municipal.

Hence the Public Health Service has limited its efforts to what it conceives to be the proper field for Federal activity—the gathering and disseminating of information which may be used by the local authorities as the basis for such action as they may see fit to take.

This work of the Public Health Service was interrupted somewhat by war-time exigencies, but since 1919 it has been going forward to the limit of available resources. Its principal activities in recent years have been the following:

(1) A study of the pollution and natural purification of the Illinois River, undertaken chiefly to check and extend observations previously made on the Potomac and Ohio Rivers relative to the laws governing natural purification in streams.

(2) A survey of representative municipal sewage-disposal plants in various parts of the United States to collect information as to their efficiency and cost in actual operation.

(3) A collective study of municipal water-purification plants, chiefly rapid sand filters, as operated in a number of cities on the Ohio River and elsewhere, with a special view to ascertaining more precisely the relations between pollution of the raw water and quality of the effluent under varying processes and conditions of operation.

The high cost of field surveys in recent years and the lack of sufficient appropriations have forced the Public Health Service to give up the work it had previously undertaken in the coastal waters. This work had, however, progressed to a point where fairly definite results had been obtained particularly with respect to dangers of contamination of shellfish by sewage discharged from coastal cities. The work of the organization at present is carried on through headquarters at Cincinnati, the center of experimental studies and the base from which parties have been sent out for work in the field.

Many of the problems are of such a nature that they can be solved by the local authorities of each city independently of other cities, but in cases where there are a number of cities along one large river and the water supply of each city comes from the stream into which other cities upstream have discharged their sewage, the problem becomes very complicated. Obviously, one city can not control the acts of another city, and in many instances cities in several States are involved. Under such conditions, the National Government, through the Public Health Service, has a very definite duty to perform.

The Public Health Service has come to the conclusion that the data needed for laying out a comprehensive plan for controlling the pollution of an entire river system with due regard for safety, equitable distribution of control, and economy are as follows:

(1) It is necessary to establish some quite definite and objective criterion of the quality which is to be maintained in the water supplies taken from the river as they are delivered to the consumers after

artificial purification. This criterion or standard must be in terms of measurable characteristics, determinable by quantitative bacteriological or chemical examinations. It must be rigid enough to insure safety beyond any reasonable question, but not much more rigid than is actually necessary, lest it impose an excessive burden of costs.

(2) It is necessary to have a fairly precise knowledge of the reliability and efficiency of such purification processes as can be applied at a reasonable cost to purification of the raw water available at the best practicable intake, for it is this efficiency, taken in connection with the standards set for the final effluent, that determines the upper limits of the pollution which may be tolerated at the intake.

(3) It is necessary to know what proportionate part of each of the sewered communities, situated at varying distances upstream, contributes to the pollution existing at any given intake, for otherwise it is impossible to estimate what effect elimination or reduction of the pollution from any single community will have in reducing the pollution in the intake zone.

This, in turn, implies a fairly precise quantitative knowledge of the laws governing the processes of natural purification, and of how they may vary in different types of streams in relation to various climatic, seasonal, and hydrographic conditions, for it is only through such knowledge that these great protective processes which nature has provided may be used most effectively, and not to use them is to waste a natural resource of enormous economic importance.

In view of the needs outlined, the Public Health Service has consistently directed its investigations of stream pollution toward such undertakings as the attempt to improve technical methods for laboratory determinations, to evaluate the efficiency of filtration plants under the adverse conditions of loading which may be anticipated in the future, and to add something to the present scanty knowledge of the laws of natural purification. Information of this kind, though it may seem academic at present, will be essential to sound sanitary engineering in the future.

RURAL SANITATION

It is the general impression that persons who live in the country enjoy better health than those in the city. At first thought there seem to be many reasons why this should be so. An abundance of fresh air and sunshine, life in the open, physical exercise, fresh eggs, milk, and green vegetables—all of these, and more, would seem to favor the rural inhabitant so strongly that the city dweller would have difficulty in overcoming his natural handicap and in attaining the degree of health and stamina of his country cousin.

Surprising as it may seem, however, the natural advantages which the country affords have been offset by failure to recognize their value

and lack of knowledge of how to secure their benefits. Moreover, many of our most destructive though avoidable diseases have flourished in the country because their causes and methods of prevention have not been understood.

This is not a reflection upon the intelligence of the countryman as contrasted with that of the city dweller. It means simply that the latter, often without his knowledge, is afforded sanitary protection through his municipal health agencies without which he would speedily become the victim of epidemic pestilence.

As the vast majority of our rural population is not yet provided with any agency capable of affording adequate health protection, it is a fact that our rural inhabitants, in order to protect themselves against disease, must have a higher degree of health understanding than those who live in the cities. Whatever they do in this respect must be devised and put into effect through their own thought and initiative. At best, however, individual health protection is inadequate as it is hardly practicable for one who lives in an insanitary environment to guard indefinitely against diseases which thrive under such conditions.

As recently as 15 years ago it was the general opinion among public health authorities and others that, deplorable though it was, little could be done to improve grossly insanitary conditions common throughout our rural sections, and to reduce the high incidence of preventable, communicable diseases to which they gave rise. Typhoid fever, hookworm diseases and other intestinal parasitic infections, infectious diarrhea, dysentery, malaria, and other diseases were very prevalent, and people for the most part accepted the resulting incapacity, loss of life, and economic losses as acts of Providence rather than as retribution for ignorance and sloth. One who advocated sanitation in those regions at that time as a remedy for such maladies would have been ridiculed and disregarded by the vast majority of the population.

Finally, in 1911, the scourge of typhoid fever had become so great in one of our most fertile and important agricultural sections that the United States Public Health Service was appealed to for relief. As might be expected, it was found that insanitary disposal of human wastes, coupled with inadequate protection of individual water supplies and careless handling of milk and other foodstuffs, was responsible for the widespread infection.

Public meetings were held throughout the county by the State and Government health officials who were working in cooperation with each other, the causes of the epidemic were painstakingly explained to the people who, because of their sufferings, were willing to listen, and their cooperation was sought in remedying insanitary conditions and practices. The result was the cleaning up of the county, the inauguration of sanitary methods of waste disposal, the protection of

wells against pollution, the cleaner handling of milk and other food supplies, and the suppression of the typhoid fever.

Typhoid fever outbreaks had been controlled before; but although the people had been willing to improve conditions temporarily, they had settled back into their old insanitary practices as soon as the immediate danger had subsided. In the case at issue, however, the Public Health Service determined to impress upon these people the necessity of maintaining sanitary conditions permanently in order to avoid similar disastrous epidemics in the future, and toward this end it advocated the employment of a physician trained in public health methods who should devote his entire time to securing and maintaining better sanitary conditions, informing the citizens as to measures for the protection and promotion of their health, and enlisting their intelligent and active cooperation in the work. The plan was adopted, and thus in Yakima County, Wash., was launched the first full-time county health officer in the United States.

From the results of the work of this pioneer county health officer it soon became apparent that country people were able to perceive the advantages of modern community sanitation when it was clearly demonstrated, and that once convinced of its benefits they were willing to support it. Beginning with that time, therefore, the Public Health Service has endeavored through every means at its command to encourage the development and maintenance of efficient whole-time health service in rural sections of this country.

From one county, in 1911, the plan has been extended until, at the beginning of the calendar year 1926, 307 of the 2,085 rural counties in the United States have been provided with full-time health officers and sufficient personnel in the way of public health nurses, sanitary inspectors, and other assistants to insure to their people a reasonably adequate degree of health protection.

State health officials now, instead of deploring the fact that there is nothing that can be done to reduce preventable diseases in the rural sections, are convinced that the solution lies in the development of local full-time health service and are eagerly availing themselves of every possible assistance from their own and the Federal Government to enable them to put this work into effect. The need of enthusiasm and interest is great in view of the fact that 84 per cent of our rural population are still without adequate health protection of the kind indicated.

The Federal appropriation for the support of this activity is "for special studies of, and demonstration work in, rural sanitation." In each demonstration project the rural sanitation work is made a part of a well-balanced, comprehensive program of health work, and is conducted in cooperation with the State and local health authorities. The cooperation is offered upon the condition that whole-time

local (county or district) health service be established. Part of the money (usually over 50 per cent) for the support of the work must be furnished from local governmental sources.

The whole-time local health officer, or sanitary officer, serves as director of the demonstration and must present qualifications for the work acceptable to each of the cooperating agencies. The sanitary inspectors, health nurses, and any other assistants in the county health service work under his direction.

All salient branches of health work, such as acute communicable disease-control measures, general sanitation of private homes and public places, malaria prevention, tuberculosis control, goiter prevention, infant and maternity hygiene, venereal-disease prevention, school hygiene, and the like are carried out. Attention is concentrated upon the different branches of the work in what appears to be the most advantageous sequence.

The various activities are dovetailed with one another so that every dollar invested and every unit of energy expended may yield the biggest possible dividend in disease prevention and health promotion. The plan has proved economical and effective under a range of conditions sufficiently wide to indicate that it might be applied with advantage to all rural communities in the United States.

As an example of the results which are possible through the development of organized health service in rural counties may be mentioned a county in Alabama. That county has a population of about 50,000. The average annual death rate per thousand of population for the five-year period before the whole-time county health service was started was about 19; in the three years following it was about 12. This means about 350 less deaths a year in the county. The lowering of the number of deaths by 350 means also the prevention of about 3,500 cases of incapacitating illness.

The average case of such illness costs about $100 in wage loss and attendance upon the sick. Thus the saving to the citizens of that county is about $350,000 a year. The whole-time county health service has been maintained at a cost of about $14,000 a year.

If the dividend yield on an investment for whole-time health service in our average rural county should be only one-fourth of this—and the evidence is that it would be at least that much—belief in the efficacy of this plan of work is most certainly justified.

While various plans for the introduction of specialized lines of public work into rural communities have been tried from time to time, the need is not for numerous dissociated activities each with its independent backer, but rather for a single, efficient, full-time, county health agency through which the measures necessary for the benefit and protection of the public health may be conducted in logical sequence and in proper relation to one another.

It is now becoming the custom for organizations entering the public health field for the promotion or conduct of some specialized activity, such as typhoid-fever prevention, hookworm control, tuberculosis prevention, trachoma control, malaria control, venereal-disease prevention, or advancement of child and maternity hygiene, to dovetail them in with, and make them a part of, a well-rounded comprehensive program of local official health service under the immediate direction of a qualified whole-time local health officer.

As the best possible plan for the prevention and control of epidemic diseases, and for the prevention of the spread of disease between the States, one may look forward to the development of efficient full-time local health service, especially in our coastal and border States and in the States through which our main lines of automobile travel pass. Communicable diseases would then be detected in their incipiency and suppressed before they had a chance to spread.

HEALTH ADMINISTRATION

During 1924 the Public Health Service, cooperating with a committee on administrative health department practice of the American Public Health Association, completed a survey of the public health activities then being carried on in the 100 largest cities in the United States. A similar survey had been undertaken by this committee in 1920, and it was thought that resurveys from time to time would serve to point out the progress made in public health administration.

In order to fill a long-felt need for some central clearing house of information, one that could render a real service to health officials and others interested in health-promotion activities, the Public Health Service, in 1923, established an office of administrative health practice, under the direction of Dr. Paul Preble.

For a number of years the Public Health Service has been engaged in making health surveys and studies of administrative health practice of State and municipal departments of health for the purpose of encouraging and promoting the development and expansion of these official agencies. No systematic attempt, however, had ever been made to carry out a comprehensive survey of large groups of cities prior to the surveys of 1920 and 1924.

Coming near the close of the first half century of our modern public health movement, the survey of 1924 made it possible to pause a moment and consider the progress of public health and sanitation in this country during this epochal period of 50 years.

Our present conception of public health or preventive medicine, as a real service, grew out of the "germ theory of disease," which overthrew traditional theories of disease causation and established modern health service on a more scientific foundation.

Public health practice in this country has been influenced largely by the adoption of a theory of local self-government. Except for the minimum requirements promulgated through the police powers exercised by State authorities, there is no effective central supervision or jurisdiction over our national health. The word "health" does not appear in our Constitution, but foundations for the protection of health, national, State, and municipal, were laid during early colonial times.

Each community has, rather independently, developed its own resources; and for this reason progress in public health activities has been haphazard, affected often by frequent political changes, and consequently the result of alternating periods of activity and depression, and hurried attempts to meet special emergencies.

It is not surprising, therefore, that the survey of 1924 discloses a considerable lack of uniformity in the methods and procedures adopted by different cities. The general trend of the public health movement during the past half century has, on the whole, been rather encouraging, even though real progress has been relatively slow.

The history of public health covering this 50-year period is filled with many notable achievements, both at home and abroad, and enduring monuments will remain to perpetuate the memories of many heroes and martyrs whose contributions and sacrifices have served to alleviate human suffering and make pestilential areas safe for mankind.

The information and data collected in 1924 have been carefully analyzed, and a voluminous report, recently published, contains special monographs, each covering one function of municipal health service and prepared by authors chosen, for the most part, because of their recognized standing in public health matters. As far as practicable, this report attempts to present a coordinated study of all the essential activities embraced in a modern community health service.

All statistical data of particular value to the interpretation of the information collected have been included in the report. Special summaries and conclusions have been followed by specific recommendations which set forth, wherever feasible, the author's conception of what constitutes the best practice or the nearest approach to a reasonably adequate scheme or program approaching the "ideal" in modern health service.

The possible benefits to be derived from a systematic survey are many and far-reaching. It is the only reliable means of determining the assets and liabilities of a community in terms of health. It is as essential to the continued progress of health services as periodic stock taking is in the commercial field.

Constructive sanitary reforms and reorganizations of health departments are dependent upon detailed surveys, which serve as the basis of future policies of administration. Fortified by the data collected through such a survey, the health officer is in position to justify his estimates before his finance committee and strengthen his appeal to the city council for additional resources which will enable him further to develop his administration.

The survey data are practically the only means of showing returns for money already invested.

Periodic surveys are extremely valuable means of checking up on the progress made ad interim. In the absence of a satisfactory survey, reforms or campaigns directed toward some particular disease or condition are prone to result in one-sided or poorly balanced programs. Modern ideas of city management and the effort to introduce methods of economy with efficiency must be founded upon facts and sound businesslike principles.

There is a growing tendency to encourage the standardization of public health work. Certain phases of this work have already been quite definitely standardized on the basis of scientific facts or as the result of years of experimentation. General surveys of large groups of cities make it possible to compare the effectiveness of various methods and to select those that have stood the test of time and experience under varying conditions and give promise of adequate returns.

Group surveys make it possible to arrive at relative values as between different procedures and permit fairly satisfactory evaluations of the more essential functions of a health service. Standardization, however desirable, should not discourage further experimentation and the development of new theories and principles of public health practice.

Careful analysis of the information and data collected in 1924 has disclosed many discrepancies and inconsistencies in present-day public health practice, many of which can not be reconciled with our present knowledge. As was to be expected, each item of local administration is met with a great variety of methods and procedures. Rule-of-thumb methods are frequently practiced and traditional theories that have outlived their usefulness have been perpetuated.

Balance of program, so vital to successful public health administration, is frequently lacking, and in many instances but little real progress has been made in applying the more recently established principles of scientific public health practice.

Compared to conditions existing even a decade ago, the findings of 1924 yield some grounds for encouragement; but there still remain many indications of defective administration, unprofitable procedures, and overlooked or neglected opportunities. Approxi-

mately 40 per cent of the 100 largest cities are still provided with part-time health officers. The average salary of this important official for the entire group is approximately $4,000 per annum. In nearly 30 per cent of these cities, appointment of personnel is still disturbed by political changes in the city administration.

There is still considerable confusion in the responsibility for the registration of births and deaths, and the data as published lack uniformity. Only 79 of the 100 large cities were in the birth registration area in 1924. There are many indications of lack of worthwhile epidemiological studies.

Terminal fumigation after death or recovery from acute contagious diseases is still practiced in 68 of the 100 cities, although the ineffectiveness of this procedure as a routine practice has long since been conclusively demonstrated.

In half of this group the health officer still exercises jurisdiction over the inspection of plumbing and 24 health departments are still charged with supervision over the collection and disposal of garbage, functions which have no direct bearing upon public health.

Although the necessity for proper pasteurization of milk supplies in large cities is rather universally accepted, in only 27 of the 100 cities in 1924 was the milk supply pasteurized to the extent of 95 per cent or over. It is also important, in this connection, to note that less than 60 per cent of the milk-producing herds had been tuberculin tested.

Facilities for hospital care of the sick are generally inadequate. Reasonably adequate facilities and provisions for prenatal and obstetrical care are rather universally lacking. Public health nursing service is only about 50 per cent adequate and there is usually an absence of central supervision or coordination of the agencies applying themselves to infant and child care.

It is to be hoped that the report, by emphasizing the more serious defects in our present administration programs, will encourage health officers to recognize the need of a thorough and substantial housecleaning that will enable them to revise and reorganize their programs so that their available resources may be more advantageously expended upon a sound businesslike basis.

By pointing out the shortcomings as well as the high points of present-day practice, the recent survey should serve to encourage the adoption of better methods and a more critical examination of existing conditions and requirements. It is proposed to carry on special studies of the more essential activities in order to establish principles and perfect technique.

On the basis of the data already collected, a bureau of information for health officials will be organized as a central clearing house for the distribution of information collected as the result of further

efforts to "study and investigate the diseases of man and conditions influencing the propagation and spread thereof" as authorized by the act of Congress of August 14, 1912.

INTERPRETING HEALTH STATISTICS

Facts are of little value unless they are interpreted. An unabridged dictionary contains, theoretically, all the words in a language, but it doesn't carry any message to the reader because the words are not arranged for that purpose. But those same words manipulated by a skilled author can tell any message which the human brain can conceive.

The interpretation of facts is the function of the office of statistical investigations of the Bureau of the Public Health Service. This unit of the service consists of a small staff of statisticians, clerks, and operatives whose business it is to analyze and draw conclusions from the large mass of information gathered each year by the other agencies of the service, particularly the other offices in the division of scientific research. In some lines this office undertakes research projects of its own, but, in general, its function is to cooperate with the other offices.

The existence of the office of statistical investigations largely eliminates the necessity for several more individual statistical units which otherwise would be needed to carry on this phase of the work of the Public Health Service. Wherever a large epidemiological study is planned and carried out, and its results are analyzed, this office is relied upon for assistance in interpreting the data gathered by the other offices. It is continually called upon by other divisions for technical advice in handling statistical news. The office might well be described as a statistical service station for the entire Bureau of the Public Health Service.

The work of this office does not begin when the work of the other offices is finished; it begins before the actual epidemiological investigation in the field starts. For it is obvious that if the Public Health Service is seeking information of a certain kind, let us say, the relation between a certain occupation and a certain disease, there must be some agreement as to what facts are pertinent to the investigation before the investigators begin to work.

The statisticians of this office are therefore called into conference with other offices before each important bit of field research work is undertaken.

Usually it is necessary to draw up certain forms upon which the reports of the investigators are to be made. This facilitates the analysis of the data and insures thoroughness and accuracy in reporting. It is necessary not only to agree upon what facts shall be sought,

but upon what indications may be accepted, for the purposes of the inquiry, as showing the existence of those facts.

When the investigation has been completed in the field and the data have been brought into the headquarters of the Public Health Service in Washington, the analytical work of the office of statistical investigations begins. Frequently it is found advisable to call in some of the investigators who are familiar with the data gathered in the field; they work in cooperation with the statisticians in the office. The general plan is to have the work done, so far as possible, by the permanent staff of the office, both for reasons of economy of administration and also for the purpose of having all statistical work done as nearly as practicable along uniform lines so that the relationship between the various groups of data can be ascertained.

One of the important activities in which the office is engaged at present is an investigation of the incidence of disease upon the population in general. To do that, the task of keeping in touch with the health records of approximately 10,000 persons in a typical American community over a period of three years was undertaken. Some of the data thus obtained give surprising results when compared with the mortality figures. For instance, it was found that for every death from respiratory diseases there were about 350 illnesses from those diseases; while for every death from certain classes of heart trouble there were only 10 cases reported. This indicated that the prevalence of ill health can not be ascertained from mortality statistics alone.

The Public Health Service has an arrangement with a group of large industrial establishments which employ, in the aggregate, about a quarter of a million persons, whereby the companies make health reports on all of their employees. In return for this service the statistical staff analyzes these figures for each industrial establishment so that the management of each plant can ascertain what diseases are the most serious problems among their employees.

A study of the common colds recently completed showed that the prevalence of this disease is practically the same throughout the United States without any sectional variations—a result that was rather surprising to many persons.

It also was shown that the seasonal fluctuations in the prevalence of colds is practically uniform throughout the United States regardless of climatic variations.

The office of statistical investigations prepares, as a matter of routine, reports dealing with the world prevalence of disease, special papers on epidemics, incidence of disease and sickness from various causes, statistical methods as applied to public-health problems, and many other subjects which are statistical in their nature.

PUBLICATIONS

The United States Public Health Service makes known the results of its special research work regarding the cause, spread, and prevention of disease, and its studies in sanitation and other fields of public health, by means of official publications, especially laboratory bulletins, which are more or less technical in nature, and public-health bulletins and articles printed in the PUBLIC HEALTH REPORTS, a weekly publication which has been issued by the service since 1878. In addition to these special articles, the PUBLIC HEALTH REPORTS contains current information on disease prevalence collected from various sources, both domestic and foreign. Many of the publications of the Public Health Service are available for free distribution and may be obtained on request. Others may be purchased at a nominal price from the Government Printing Office or may be consulted in public and medical libraries. Additional information regarding the work and publications of the service may be had by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

DIPHTHERIA CASES IN THE UNITED STATES, 1923-1926

For several years the number of cases of diphtheria reported in the United States has been decreasing. Reports from State health officers for 11 months of the years 1923 to 1926, inclusive, show a remarkably steady decrease in the number of cases of this disease reported.

In the table printed below data are given from 39 States and the District of Columbia for 11 months of the years 1923 to 1926, inclusive. All States were included for which the information was available when the table was prepared.

The table shows that the number of cases reported in 1926 was 38.91 per cent less than the number in 1923.

The falling off in the figures each year from those for the preceding year was 16.52 per cent in 1924, 20.26 per cent in 1925, and 8.23 per cent in 1926.

The New England States showed the greatest improvement, the figure for 1926 being 59.49 per cent below that for 1923. The East South Central States were the only group which showed an increase for the four years, and this increase amounted to only 1.94 per cent. In general, the improvement was greatest in the eastern and northern sections and least in the southern groups of States.

Cases of diphtheria reported during 11 months of 1926, by State health officers compared with similar reports for the same period of the years 1925, 1924, and 1923

	First quarter	Second quarter	Third quarter	October and November	Total, 11 months
New England:					
Maine—					
1926	47	36	30	34	147
1925	98	45	57	44	244
1924	154	125	93	170	542
1923	108	64	76	125	373
Massachusetts—					
1926	968	709	510	709	2,896
1925	1,504	1,102	747	739	4,092
1924	2,537	1,763	1,110	1,203	6,613
1923	2,243	1,816	1,646	2,211	7,916
Rhode Island—					
1926	137	66	46	91	340
1925	177	106	55	78	416
1924	231	162	125	135	653
1923	216	178	133	185	712
Connecticut—					
1926	559	202	140	221	1,122
1925	654	363	211	299	1,527
1924	698	390	335	394	1,817
1923	749	539	366	467	2,121
Total—					
1926	1,711	1,013	726	1,055	4,505
1925	2,433	1,616	1,070	1,160	6,279
1924	3,620	2,440	1,663	1,902	9,625
1923	3,316	2,597	2,221	2,988	11,122
Middle Atlantic:					
New York—					
1926	2,859	2,517	2,005	2,046	9,427
1925	3,992	4,500	1,976	1,903	12,371
1924	4,776	4,474	2,618	2,183	14,051
1923	4,104	3,454	2,407	3,351	13,316
New Jersey—					
1926	1,094	906	557	921	3,478
1925	1,244	890	737	808	3,679
1924	1,474	1,004	655	729	3,862
1923	2,106	1,196	929	1,176	5,407
Pennsylvania—					
1926	1,687	1,922	1,442	1,698	6,749
1925	2,889	2,551	1,751	2,098	9,289
1924	4,441	2,646	1,914	2,404	11,405
1923	4,343	2,838	2,625	4,071	13,877
Total—					
1926	5,640	5,345	4,004	4,665	19,654
1925	8,125	7,941	4,464	4,809	25,339
1924	10,691	8,124	5,187	5,316	29,318
1923	10,553	7,488	5,961	8,598	32,600
East North Central:					
Ohio—					
1926	1,266	1,018	1,024	2,208	5,516
1925	1,329	860	826	1,605	4,620
1924	2,324	1,098	798	1,325	5,545
1923	2,800	1,400	1,739	2,859	8,798
Indiana—					
1926	434	224	295	876	1,829
1925	549	281	253	674	1,757
1924	1,100	467	390	894	2,851
1923	1,167	477	444	1,206	3,294
Illinois—					
1926	1,234	993	709	1,074	4,010
1925	1,480	1,084	826	1,073	4,463
1924	2,474	1,419	1,052	1,250	6,195
1923	3.787	1,930	1,410	2,432	9,559
Michigan—					
1926	1,178	1,086	1,028	1,498	4,790
1925	1,060	842	627	948	3,477
1924	2,229	1,309	909	1,069	5,516
1923	2,049	1,318	1,390	2,023	6,780

Cases of diphtheria reported during 11 months of 1926, by State health officers, compared with similar reports for the same period of the years 1925, 1924, and 1923—Continued

	First quarter	Second quarter	Third quarter	October and November	Total, 11 months
East North Central—Continued.					
Wisconsin—					
1926	620	413	359	473	1,865
1925	560	487	493	476	2,016
1924	913	613	460	524	2,510
1923	1,046	636	704	1,426	3,812
Total—					
1926	4,732	3,734	3,415	6,129	18,010
1925	4,978	3,554	3,025	4,776	16,333
1924	9,040	4,906	3,609	5,062	22,617
1923	10,849	5,761	5,687	9,946	32,243
West North Central:					
Minnesota—					
1926	678	725	502	776	2,681
1925	941	842	879	798	3,460
1924	1,108	714	690	1,019	3, [illegible]
1923	965	624	909	1,411	3,909
Missouri—					
1926	1,023	781	337	604	2,745
1925	985	770	388	757	2,900
1924	901	608	368	908	2,785
1923	1,162	660	679	1,190	3,691
North Dakota—					
1926	79	86	44	40	249
1925	83	45	38	62	228
1924	208	83	51	39	381
1923	213	68	101	202	584
South Dakota—					
1926	83	51	48	47	229
1925	94	42	55	49	240
1924	123	104	67	92	386
1923	191	168	114	205	678
Nebraska—					
1926	101	43	38	66	248
1925	125	90	51	110	376
1924	256	120	157	281	814
1923	303	129	177	247	856
Iowa—					
1926	224	124	141	246	735
1925	219	176	111	408	914
1924	319	163	128	176	786
1923	476	233	302	469	1,480
Kansas—					
1926	244	131	143	268	780
1925	460	160	114	270	1,004
1924	529	268	256	463	1,516
1923	694	328	384	874	2,250
Total—					
1926	2,432	1,944	1,253	2,047	7,676
1925	2,907	2,125	1,636	2,454	9,122
1924	3,444	2,060	1,717	2,978	10,199
1923	4,004	2,210	2,666	4,598	13,478
South Atlantic:					
Delaware—					
1926	47	26	17	23	113
1925	51	28	22	63	164
1924	87	44	16	34	181
1923	45	41	23	45	154
Maryland—					
1926	324	226	186	345	1,081
1925	462	318	253	328	1,361
1924	521	365	292	447	1,625
1923	838	427	325	535	2,125
District of Columbia—					
1926	284	171	124	256	835
1925	208	127	67	176	578
1924	111	75	55	95	336
1923	209	91	51	151	502
Virginia—					
1926	461	199	472	1,340	2,472
1925	494	242	701	1,259	2,696
1924	711	259	706	1,245	2,921
1923	1,102	406	879	1,726	4,113

Cases of diphtheria reported during 11 months of 1926, by State health officers, compared with similar reports for the same period of the years 1925, 1924, and 1923—Continued

	First quarter	Second quarter	Third quarter	October and November	Total, 11 months
South Atlantic—Continued.					
West Virginia—					
1926	248	145	188	505	1,086
1925	286	119	178	373	956
1924	359	179	238	395	1,171
1923	498	234	404	632	1,768
North Carolina—					
1926	427	220	641	1,518	2,806
1925	475	255	952	1,500	3,182
1924	466	259	1,389	1,665	3,779
1923	566	283	1,272	2,171	4,292
Georgia—					
1926	170	118	233	760	1,281
1925	217	124	183	326	850
1924	171	120	184	417	892
1923	205	141	210	459	1,015
Florida—					
1926	200	198	201	387	986
1925	121	113	198	233	665
1924	178	81	156	188	603
1923	138	68	130	194	530
Total—					
1926	2,161	1,303	2,062	5,134	10,660
1925	2,314	1,326	2,554	4,258	10,452
1924	2,604	1,382	3,036	4,486	11,508
1923	3,601	1,691	3,294	5,913	14,499
East South Central:					
Mississippi—					
1926	329	140	256	473	1,198
1925	266	131	323	488	1,208
1924	246	159	293	378	1,076
1923	260	116	545	707	1,628
Tennessee—					
1926	177	138	200	981	1,496
1925	209	75	126	221	631
1924	156	69	171	298	694
1923	167	67	253	355	842
Alabama—					
1926	249	105	231	722	1,307
1925	267	105	289	518	1,179
1924	171	96	242	491	1,000
1923	255	150	466	584	1,455
Total—					
1926	755	383	687	2,176	4,001
1925	742	311	738	1,227	3,018
1924	573	324	706	1,167	2,770
1923	682	333	1,264	1,646	3,925
West South Central:					
Arkansas—					
1926	72	18	28	84	202
1925	98	33	40	123	294
1924	108	38	52	115	313
1923	103	41	69	215	428
Louisiana—					
1926	235	98	154	338	825
1925	262	124	157	258	801
1924	289	220	127	227	863
1923	385	149	241	328	1,103
Oklahoma—					
1926	253	104	182	398	937
1925	300	124	112	387	923
1924	179	79	73	221	552
1923	166	110	83	188	547
Total—					
1926	560	220	364	820	1,964
1925	660	281	309	768	2,018
1924	576	337	252	563	1,728
1923	654	300	393	731	2,078

Cases of diphtheria reported during 11 months of 1926, by State health officers, compared with similar reports for the same period of the years 1925, 1924, and 1923—Continued

	First quarter	Second quarter	Third quarter	October and November	Total, 11 months
Mountain:					
Montana—					
1926	59	56	49	18	182
1925	129	69	51	39	288
1924	137	114	95	110	456
1923	159	80	78	105	422
Wyoming—					
1926	22	20	7	11	60
1925	20	33	25	12	90
1924	24	15	13	7	59
1923	11	10	7	31	59
Colorado—					
1926	329	218	217	182	946
1925	260	309	315	321	1,205
1924	395	496	254	217	1,362
1923	782	588	497	504	2,371
Arizona—					
1926	66	22	30	28	146
1925	48	22	8	38	116
1924	40	47	17	23	127
1923	29	48	32	38	147
Total—					
1926	476	316	303	239	1,334
1925	457	433	399	410	1,699
1924	596	672	379	357	2,004
1923	981	726	614	678	2,999
Pacific:					
Washington—					
1926	243	196	306	420	1,165
1925	593	271	229	239	1,332
1924	430	406	312	308	1,456
1923	264	274	238	239	1,015
Oregon—					
1926	275	236	174	143	828
1925	347	352	174	337	1,210
1924	377	207	270	378	1,232
1923	194	162	118	291	765
California—					
1926	1,529	1,338	1,173	1,254	5,294
1925	1,733	1,324	996	975	5,028
1924	3,618	2,995	1,851	1,695	10,159
1923	2,196	1,990	1,728	2,289	8,203
Total					
1926	2,047	1,770	1,653	1,817	7,287
1925	2,673	1,947	1,399	1,551	7,570
1924	4,425	3,608	2,433	2,381	12,847
1923	2,654	2,426	2,084	2,819	9,983
Grand total—					
1926	20,514	16,028	14,467	24,082	75,091
1925	25,289	19,534	15,594	21,413	81,830
1924	35,569	23,853	18,982	24,212	102,616
1923	37,294	23,532	24,184	37,917	122,927

CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT PUBLISHED DECEMBER 15, 1926, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT [1]

Only slight seasonal increases in the general mortality in European countries during October and November were indicated by the data in the December Epidemiological Report published at Geneva by the health section of the League of Nations' secretariat. Outbreaks of influenza had been reported only from England and Wales and Switzerland. In England, the number of deaths from influenza and

[1] From the Office of Statistical Investigations.

cases of pneumonia reported rose during the first half of the month of November, subsided quickly but started increasing again before the middle of December. In Switzerland outbreaks of mild influenza were reported from the various towns early in December, and 500 cases were reported at Berne during the week ending December 11.[2]

TABLE 1.—*Deaths from influenza and from all causes in 105 English towns and pneumonia cases reported in England and Wales from October 3 to December 11, 1926*

Two weeks ending—	Deaths from— Influenza	All causes	Pneumonia cases
Oct. 16	74	7,709	1,378
Oct. 30	125	8,835	1,591
Nov. 13	188	9,182	2,250
Nov. 27	130	8,721	1,154
Dec. 11	120	9,417	2,330

Plague.—Important outbreaks of plague in southern Tunisia were reported in November and smaller outbreaks in Algeria, chiefly at Oran.

TABLE 2.—*Cases of plague during November in Algeria and Tunisia*

Period	Algeria			Tunisia	
	Algiers	Oran	Tarafaraoui[1]	Sfax district	Southern military territories
Nov 1-10	0	1	0	88	6
Nov. 11-20	0	1	0	68	
Nov. 21-30	1	25	6	32	
Total	1	27	6	188	6

[1] Near Oran.

Egypt was comparatively free from the disease during November, with only 5 cases reported, all in Gharbia Province.

Greece reported one case of plague at Patras on October 28 and another in Messenia Province on November 12.

The prevalence of plague in Southern Nigeria increased considerably in September, when 305 cases were reported, as compared with 187 in August. This is the highest monthly incidence ever reported in that country.

In Madagascar, where plague had been more prevalent for several months than in previous years, no further increase in cases was indicated by the report for the first half of November.

At St. Denis, on the island of Réunion, 10 cases of plague were reported during November, and 1 case was reported in the first week of December.

[2] Editorial note: For later information regarding the influenza outbreak in Europe see Public Health Reports for February 4, 1927, p. 283, and this issue, p. 367.

The total number of deaths from plague reported in India for the four weeks ending October 23 was 3,592, a considerable increase over the preceding four-week period and higher than in the corresponding period of 1925. The disease was more prevalent in the Central Provinces and in Hyderabad State than in 1925, but much less prevalent in Bombay Presidency. The number of cases reported in the Punjab began to rise earlier than usual.

The seasonal increase in deaths from plague in Java was slight and the number remained lower for the month of October than for the corresponding month for several years past.

Peru reported 36 cases of plague in October as compared with 45 in September. At Guayaquil, Ecuador, 3 cases were notified in October. Argentine reported 5 cases in Cordoba Province in the week November 7–13.

One case of plague was reported from Honokaa, Hawaii.

Cholera.—Cholera continued to spread during November in the Province of Tonkin, in French Indo-China, and 992 cases were reported during the month as against 460 in October. A fresh outbreak of the disease also occurred in Annan in November, when 272 cases were reported, but Cochin China and Cambodia reported only a few cases. The ports Haiphong and Tourane were both seriously infected.

TABLE 3.—*Cholera cases reported in the principal maritime towns of the Far East between November 7 and December 11, 1926*

Maritime towns	Week ending—				
	November			December	
	13	20	27	4	11
Tuticorin (deaths)	0	0	0	1	0
Negapatam (deaths)	0	1	0	0	2
Calcutta (deaths)	19	34	16	31	62
Rangoon (deaths)	0	0	1	2	0
Singapore (cases)	3	2	1	2	2
Bangkok (cases)	2	3	0	1	2
Saigon (cases)	1	0	0	0	1
Tourane (cases)	10	6	1	5	9
Haiphong (deaths)	22	27	32	15	13

In India the cholera situation improved in October and especially in Bihar and Orissa, where the deaths during the four weeks ending October 23 were only 610, compared with 2,207 in the preceding four weeks. The number of cholera deaths in the whole of British India (3,003) was practically the same during the four weeks ending October 23 as for the corresponding period of 1925.

Three cases of cholera were reported at Hiogo in Japan in the week ended November 20.

Yellow fever.—"Yellow fever cases continued to occur among Europeans in Senegal during the whole of November and the beginning of December," states the Report. "New extensions of the infected area, since the issue of our last Report, were Rufisque, near Dakar, Guinguineo, which is the junction of the Kaolak Railway with the main line from Dakar to the Niger, and Diourbel, on this latter railway between the two first-mentioned points."

The yellow fever cases and deaths reported during the month preceding the publication of the December Report were as follows:

TABLE 4.—*Yellow fever cases and deaths*

Locality	Date	Cases	Deaths
Africa:			
Gold Coast	Sept. 1-30	1	1
Nigeria	do	1	0
Senegal—			
Kaolak district	Nov. 13	1	1
	Nov. 16	1	0
Guinguineo	do	1	1
	Dec. 7	1	1
Rufisque	Nov. 27	1	1
	Dec. 7	1	1
Diourbel	Dec. 5	1	1
French Sudan—			
Segou	Nov. 14	1	1

Typhus.—The 20 cases of typhus reported in Poland in the week ending October 30 gave evidence that the usual seasonal increase of the disease had started in that country. In Europe and Northern Asia, typhus reaches its lowest incidence in midsummer and increases slowly during the autumn, finally reaching a peak about March.

A small outbreak of typhus was reported in Algeria in the Department of Oran in November. There were 29 cases in November as against 7 in October and 11 in September. In Tunisia, only 4 cases of typhus were reported in November.

In the Union of South Africa, 48 cases and 2 deaths were reported in September as against 100 cases and 19 deaths in August.

Relapsing fever.—No extension of the relapsing fever epidemic in Darfur, details of which were given in last month's Report, has been reported. The number of deaths from this disease up to November 9 was 3,721.

Smallpox.—The incidence of smallpox in England continued to increase during November and 353 cases were reported in the last week of the month. "It seems probable that the epidemic will reach, in December, the same high level as in January last year," says the Report. The incidence of smallpox in both England and France has been rising since 1921, as indicated by the following figures.

TABLE 5.—*Cases of smallpox reported in England and France, 1921–1926*

	1921	1922	1923	1924	1925	1926
England	315	973	2,155	3,765	5,363	[1] 8,306
France	311	172	195	210	456	[2] 147

[1] 10½ months. [2] 10 months.

The smallpox outbreaks in Paris in September subsided and only 4 cases were reported in the 10-day period November 21–30, and 1 case in the suburbs.

In Algeria, also, there was a marked increase in the number of smallpox cases; 290 cases were reported in November, 180 in October, and 149 in September.

The number of cases increased also in the United States during November; the reported totals in the first three weeks of November, respectively, were 233, 340, 358.

Acute poliomyelitis.—New cases of acute poliomyelitis declined somewhat in England and Wales during November, and 190 cases were reported in the four weeks ending November 20 as compared with 241 cases in the preceding four-week period.

In Germany, the incidence continued high and 183 cases were reported in the three weeks ending October 30. The peak of the epidemic was reached at the end of August and the disease seemed definitely to be on the wane.

Diphtheria.—The diphtheria morbidity showed marked seasonal increases during October and November in many European countries and in the United States. It is usual, however, for the incidence of this disease to rise during the autumn months and the rise during the past autumn was not excessive. A comparison of the incidence in recent months with 1925 is shown in the following table:

TABLE 6.—*Cases of diphtheria reported in various countries in 1925 and in 1926*

Four weeks ending—	England and Wales		Netherlands		Germany		Poland		Italy		Japan	
	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926
July 17	3,464	3,420	291	227	2,344	1,751	345	346	787	740	595	699
Aug. 14	3,198	3,178	269	204	2,167	1,744	310	403	714	676	382	382
Sept. 11	3,071	3,015	258	215	2,517	1,931	421	521	787	775	355	379
Oct. 9	4,002	4,193	318	210	2,706	2,354	521	665	926	1,039	560	580
Nov. 6	4,667	4,581	365	270	2,931	2,477	573	716	1,008		853	1,029
Dec. 4	4,179	4,693	386	284	2,871		537		1,212		1,092	

Month	Sweden		France		Czechoslovakia		Hungary		Serbs, Croats, and Slovenes		United States [1]	
	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926
June	195	200	1,091	1,052	235	271	211	301	91	72	5,864	3,547
July	196	317	958	1,032	265	245	189	240	84	97	4,723	3,059
August	283	206	692	721	241	267	203	274	81	120	5,122	3,274
September	316	307	607	673	299	421	224	372	120	180	6,873	5,774
October	376	349	842	973	466	564	359	531	198	237	11,156	9,536
November	433		920		505		445		171		11,498	
December	352		1,078		473		368		159		9,869	

[1] Data for 4-week periods in 1926, starting with the 4 weeks ending July 17.

Scarlet fever.—The incidence of scarlet fever continued its upward trend in Germany, Poland, Estonia, and the Netherlands during November. In each of these countries it is more prevalent than in any of the preceding four years.

TABLE 7.—*Cases of scarlet fever reported in Estonia, Poland, Germany, and in the Netherlands in 1925–26*

Month	Estonia		Four-weeks' period—	Poland		Germany		Netherlands	
	1925	1926		1925	1926	1925	1926	1925	1926
January	30	217	Jan. 31	2,219	2,069	3,280	3,321	777	1,068
February	51	195	Feb. 28	2,041	1,984	3,136	3,306	739	897
March	51	288	Mar. 28	1,864	1,954	2,805	2,890	709	724
April	36	157	Apr. 25	1,485	1,598	2,529	2,926	678	640
May	34	121	May 23	1,629	1,589	2,450	3,172	619	707
June	33	154	June 20	1,670	2,010	2,488	3,147	603	774
July	32	169	July 18	1,769	2,278	2,715	3,180	814	857
August	51	110	Aug 15	1,476	2,458	2,567	3,008	743	914
September	57	246	Sept. 12	1,825	4,225	3,165	4,367	976	1,031
October	98	462	Oct. 10	2,376	5,152	3,895	5,846	1,305	1,554
November	134		Nov. 7	2,693	4,681	3,818	6,497	1,378	1,857
December	168		Dec. 5	2,469		3,705		1,203	1,891
			Jan. 2	1,694		3,366		1,087	

In the United States the prevalence of scarlet fever was high as compared with the previous year. There were 3,515 cases reported in the single week ending November 23.

PLAGUE IN MONGOLIA

An outbreak of pneumonic plague was reported in Mongolia in November and December, 1926,[1] regarding which detailed information has been more or less incomplete and unauthoritative. The following statements are quoted from a bulletin issued January 8, 1927, by Dr. Wu Lien Teh, Director and Chief Medical Officer of the North Manchurian Plague Prevention Service, summarizing the press items and presenting the latest information regarding the situation.

1. Toward the end of November, 1926, news reached us in an indirect way regarding the probable existence of plague in Outer Mongolia. In spite of our efforts no confirmation could be obtained until the beginning of December, when reports began to appear in the Harbin newspapers apparently substantiating the news. These published detailed information about the plague supplied by travelers and chauffeurs returning from Mongolia to Manchouli. Most of them spoke at first of extensive outbreaks threatening to invade Manchuria.

2. The news contained in the newspapers may be summarized as follows: From spring, 1926, onward, a high mortality was said to have been observed among the tarbagans in Outer Mongolia. This

[1] Public Health Reports, Dec. 31, 1926, p. 3098, and Feb. 4, 1927, p. 359.

was at the time ascribed to the prevailing dry weather. But it might have been partly due to plague, since during the autumn (hunting season) suspicious cases were observed among marmot hunters. These were at first only isolated cases, being confined to the nomads. Later on (October-November) the epidemic seems to have invaded more populous regions. The first distributing center seems to have been between Sanpeitzu (or Sanbese, commercial center on the Kerulen River, 200 miles southwest of Manchouli on the route to Urga) and Che Chen Han (also on the Kerulen River half way between Sanpeitzu and Urga). Here the disease was said to have claimed 500 victims in two days. It was further maintained that the panic-stricken inhabitants fled and that the refugees were probably responsible for infecting two new foci—namely, Sanpeitzu, where pneumonic plague was said to prevail, and a locality 60 miles south of Urga. This spread of the disease to Sanpeitzu and westward was confirmed by a wire we received on December 13 from a supposedly reliable source at Manchouli, which spoke of serious outbreaks both at Sanpeitzu and near Urga.

3. Senior Medical Officer Chun, with a medical contingent, proceeded to Hailar and Manchouli on December 16 to investigate and adopt all necessary precautions. Neither we nor the medical department of the Chinese Eastern Railway have so far received direct official news from Mongolia; it is also doubtful whether the plague prevention bureau at Chita (Transbaikalia) has any official information. Luckily we are able to obtain reliable news from various sources and thus to provide a more or less true picture of the situation. This information may now be summarized, as follows:

(*a*) There is no doubt that exceedingly dry weather prevailed in Outer Mongolia in the summer of 1926. As past experience has taught us, a close connection exists between dry weather and spread of the plague among the tarbagans.

(*b*) Reports of suspicious human cases occurring between Che Chen Han and Sanpeitzu (on the caravan route from Manchouli to Urga) had reached Urga about November 20, 1926, and two Russian medical officers had prepared to leave Urga for the plague focus.

(*c*) The existence of this focus seems confirmed. It appears that the Mongolian authorities took strict measures, including a cordon round this area.

(*d*) News about the spread of plague to Urga is not confirmed.

(*e*) Sanpeitzu was free from the disease up to December 21, 1926.

(*f*) The plague had already subsided toward middle of December in the focus near Che Chen Han, and part of the medical personnel departed at that time.

(*g*) A distance of 200 miles roughly separates each of the stations Manchouli, Sanpeitzu, Che Chen Han, and Urga.

4. The danger to Manchuria was never particularly great, even if the worst reports turned out true, for in addition to our precautions there is not much traffic between Manchuria and Mongolia. Caravans take at least a week to reach Manchouli from Sanpeitzu, so that individuals infected at the latter would be ill already when arriving in Chinese territory and would therefore be detected. Motor cars take only a couple of days, but these are few in number

and easily controlled; moreover, the passengers must be in good circumstances in order to afford such traveling, while the chauffeurs are all Russians. Consequently they are not likely to be in close contact with the poor Chinese in their crowded winter quarters, where the disease may assume epidemic proportions.

5. On the other hand the presumable existence of plague in Outer Mongolia, perhaps even as near as Sanpeitzu (as seemed to be the case at the time) made it necessary for our service to adopt the strictest preventive measures in Manchuria. These include:

(*a*) At Manchouli—

(*i*) Stopping all ingress except at two points where all arrivals are medically examined.

(*ii*) Refusing permits to motor cars and caravans to Mongolia.

(*iii*) House to house inspection.

(*iv*) Examination of passengers arriving by rail from Siberia.

(*v*) Examination of Chinese Eastern Railway passengers. These measures came in full force on December 15, to be enforced for one month at least.

(*b*) At Hailar—

Similar measures were started at Hailar, where Doctor Liu, of the government hospital, is stationed as senior medical executive.

(*c*) At Dalainor (coal mines)—

Here similar precautions are carried out by the Chinese Eastern Railway, with a special physician in charge.

6. It would seem that the critical time has passed, for no further plague cases have been reported from the infected center in Mongolia since December 13. Our antiplague measures are still being enforced on the border between Manchuria and Mongolia.

MALARIA AND EFFICIENCY IN BOMBAY

According to a recent report from the American consul in Bombay, India, that city has an acute malaria problem. Malaria is said to be prevalent in Bombay at all times of the year, but with the closing of the monsoon it takes epidemic proportions and incapacitates thousands of persons. The report states that, with few exceptions, every person in Bombay, and even throughout the entire malarial region, is at some time subject to attacks of malaria. Those who can afford it take an extended course of treatment, but the poorer classes never receive treatment long enough to effect a cure and they therefore remain a huge reservoir of infection.

During the investigation of the textile board the efficiency of the mill hands in Bombay was determined as being far below that of similar workers in Great Britain, Japan, and the United States, and their inefficiency was attributed largely to repeated attacks of malaria. The lack of robust physical health and stamina among

the students in the Bombay University has often been made the subject of remark. Doctor Paranjpye, an eminent Indian educator, in an address to the students of the University of Bombay, spoke of the "deplorable lack of manly vigor" among them.

Each year the newspapers print vigorous editorials emphasizing the material loss to business through sickness and absenteeism among employees caused by malaria and urging the municipal authorities to take the necessary measures to eradicate the disease. These protests were stronger than usual in 1926, because of the large increase in the number of cases of malaria during the year.

Following the press agitation of 1925, a conference of officials and public representatives was called and a permanent committee in charge of malaria-control work was recommended. About six months later the committee was appointed. Up to the close of 1926, however, little work had been done in malaria reduction, many factors—both racial and those peculiar to bodies controlling expenditures—contributing to the lack of accomplishment. As was once the general feeling in certain malarious sections of the United States, it is the conception of many of the people of Bombay that a certain amount of malaria is necessary and unavoidable.

As is well known, it is difficult to stamp out malaria in a thickly settled community without the cooperation of the people of that locality; and it is stated that the antimalaria work in Bombay is going to be difficult, owing to the crowded conditions in certain sections of the city and the indifference of many of the inhabitants and their disbelief in methods of malaria-control work founded on the fundamental principle of preventing malaria by preventing the breeding of mosquitoes.

In nearly all the newspaper editorials and articles dealing with the subject of malaria in Bombay, the consul states that the work done by the United States Government in Panama is held up as the great example of mosquito control, and the question is almost invariably asked, "If it can be done in Panama, why not in Bombay?"

DEATHS DURING WEEK ENDED JANUARY 29, 1927

Summary of information received by telegraph from industrial insurance companies for week ended January 29, 1927; and corresponding week of 1926. (From the Weekly Health Index, February 3, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 29, 1927	Corresponding week 1926
Policies in force	66, 591, 039	63, 338, 917
Number of death claims	13, 132	13, 268
Death claims per 1,000 policies in force, annual rate	10. 3	10. 9

Deaths from all causes in certain large cities of the United States during the week ended January 29, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, February 3, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 29, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 29, 1927 [2]
	Total deaths	Death rate [1]		Week ended Jan. 29, 1927	Corresponding week, 1926	
Total (67 cities)	7,514	13.2	14.2	782	854	[3] 66
Akron	40			8	5	86
Albany [4]	35	15.2	17.5	1	5	21
Atlanta	79			2	8	
White	50			1	3	
Colored	29	(5)		1	5	
Baltimore [4]	245	15.6	21.4	25	30	77
White	191		20 1	19	21	73
Colored	54	(5)	28.5	6	9	93
Birmingham	76	18.4	16.6	7	8	
White	32		9.8	4	1	
Colored	44	(5)	27.0	3	7	
Boston	220	14.5	15.6	24	22	67
Bridgeport	29			1	6	19
Buffalo	157	14.9	12.3	15	18	63
Cambridge	38	16.0	12.8	6	3	107
Camden	38	14.9	18.3	3	7	52
Canton	26	12.0	8.1	3	2	71
Chicago [4]	719	12.1	12.7	76	92	66
Cincinnati	130	16.5	15.4	7	9	44
Cleveland	197	10.4	10.3	14	15	37
Columbus	87	15.6	14.8	7	10	65
Dallas	43	10.7	14.9	6	8	
White	35		13.6	6	8	
Colored	8	(5)	23.2	0	0	
Dayton	45	13.0	10.3	5	2	82
Denver	100	18.0	13.9	7	5	
Des Moines	36	12.6	12.9	4	2	67
Detroit	344	13.4	11.5	51	41	85
Duluth	20	9.1	10.6	4	7	86
El Paso	26	11.9	30.1	3	12	
Erie	38			1	5	20
Fall River [4]	34	13.3	17.5	4	7	71
Flint	25	9.1	6.9	6	4	98
Fort Worth	45	14.3	11.5	2	3	
White	36		9.7	1	3	
Colored	9	(5)	24.7	1	0	
Grand Rapids	22	7.2	13.7	3	5	44
Houston	62			6	4	
White	43			5	1	
Colored	19	(5)		1	3	
Indianapolis	72	10.0	14.5	7	7	55
White	61		13.6	5	5	45
Colored	11	(5)	21.3	2	2	122
Jersey City	91	14.7	12.5	13	13	97
Kansas City, Kans	32	14.3	12.0	7	2	136
White	20		9.7	4	1	89
Colored	12	(5)	22.9	3	1	456
Kansas City, Mo	108	14.7	12.7	10	13	
Los Angeles	262			30	25	86
Louisville	70	11.4	12.1	7	8	60
White	50		12.0	4	8	39
Colored	20	(5)	12.2	3	0	210
Lowell	26	12.3	15.1	4	6	77
Lynn	26	12.9	9.5	1	2	26
Memphis	66	19.2	21.5	10	10	
White	33		18.8	5	4	
Colored	33	(5)	26.5	5	6	
Milwaukee	110	10.9	10.4	18	9	84
Minneapolis	100	11.8	11.1	11	7	62
Nashville [4]	53	20.0	21.7	5	4	
New Bedford	21	9.2	15.7	6	9	104
New Haven	61	17.2	13.2	8	7	112
New Orleans	162	10 9	26.5	17	32	
White	88		21.4	10	19	
Colored	74	(5)	41.1	7	13	

(Footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended January 29, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Jan. 29, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Jan. 29, 1927
	Total deaths	Death rate		Week ended Jan. 29, 1927	Corresponding week, 1926	
New York	1,389	12.1	13.4	130	148	54
Bronx Borough	160	9.0	10.8	12	13	38
Brooklyn Borough	432	9.9	11.3	43	54	44
Manhattan Borough	621	17.8	18.8	56	64	66
Queens Borough	137	8.8	8.8	15	12	64
Richmond Borough	39	13.8	16.4	4	5	74
Newark, N. J	99	11.1	13.1	14	13	69
Norfolk	24	7.0	12.0	2	5	40
White	9		7.0	0	1	0
Colored	15	(5)	20.7	2	4	106
Oakland	57	11.1	16.8	7	13	82
Oklahoma City	33			1	1	
Omaha	48	11.4	14 2	6	8	67
Paterson	36	13.0	14.6	6	5	106
Philadelphia	548	14.0	16.5	48	47	64
Pittsburgh	180	14.6	15.0	27	22	94
Portland, Oreg	84			4	5	42
Providence	57	10 6	14.4	11	9	93
Richmond	54	14.7	15.2	6	8	79
White	33		11.7	4	3	81
Colored	21	(5)	23.7	2	5	76
Rochester	68	10.9	12.3	6	11	50
St. Louis	241	15.0	14.2	22	15	
St. Paul	51	10.6	14.3	3	2	27
Salt Lake City [4]	37	14 2	20.8	4	10	61
San Antonio	62	15.3	17.6	4	8	
San Diego	50	22.7	15.6	1	2	21
San Francisco	186	16.8	16.6	9	12	56
Schenectady	14	7.8	20.7	2	6	60
Seattle	81			7	2	73
Somerville	22	11.2	9.4	4	3	144
Springfield, Mass	37	13.1	13.7	5	5	77
Syracuse	57	15.1	10.7	6	3	77
Tacoma	27	13.2	10.8	1	3	24
Toledo	84	14.4	13.4	6	7	58
Trenton	44	16.7	17.5	8	2	139
Utica	39	19.7	18.2	1	7	23
Washington, D. C	148	14.3	14.3	17	12	98
White	96		12.3	6	5	51
Colored	52	(5)	20.3	11	7	202
Waterbury	25			5	3	118
Wilmington, Del	35	14.5	14.7	4	3	99
Worcester	51	13.6	15.1	4	7	48
Yonkers	23	10.1	15.7	2	6	45
Youngstown	40	12.3	9.8	6	6	84

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Jan. 28, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended February 5, 1927

ALABAMA

	Cases
Chicken pox	51
Diphtheria	29
Influenza	74
Malaria	7
Measles	121
Mumps	21
Ophthalmia neonatorum	1
Pellagra	12
Pneumonia	55
Scarlet fever	18
Smallpox	71
Tuberculosis	33
Typhoid fever	7
Whooping cough	35

ARIZONA

	Cases
Chicken pox	6
Diphtheria	7
Measles	23
Mumps	1
Scarlet fever	15
Trachoma	1
Tuberculosis	30
Typhoid fever	2
Whooping cough	7

ARKANSAS

	Cases
Chicken pox	44
Diphtheria	6
Influenza	106
Malaria	22
Measles	8
Mumps	89
Ophthalmia neonatorum	3
Pellagra	9
Scarlet fever	7
Smallpox	3
Tuberculosis	1
Typhoid fever	5
Whooping cough	32

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Eureka	1
Los Angeles	1
Oakland	2
San Diego	5
Chicken pox	471
Diphtheria	159
Influenza	40
Jaundice (epidemic)	7
Lethargic encephalitis:	
Fresno	1
Oakland	1
Measles	2,409
Mumps	231
Poliomyelitis:	
San Diego	1
San Francisco	1
Scarlet fever	299
Smallpox	17
Tuberculosis	120
Typhoid fever	2
Whooping cough	109

COLORADO

	Cases
Cerebrospinal meningitis	2
Chicken pox	42
Diphtheria	9
German measles	18
Influenza	1
Measles	188
Mumps	12
Pneumonia	9
Poliomyelitis	2
Scarlet fever	176
Septic sore throat	1
Smallpox	17
Trachoma	1
Tuberculosis	10
Typhoid fever	1
Whooping cough	7

CONNECTICUT

	Cases
Cerebrospinal meningitis	1
Chicken pox	139
Diphtheria	35
German measles	3
Influenza	11
Measles	60
Mumps	23
Paratyphoid fever	1
Pneumonia (broncho)	38
Pneumonia (lobar)	48
Poliomyelitis	1
Scarlet fever	116
Septic sore throat	2
Tuberculosis (all forms)	33
Typhoid fever	1
Whooping cough	40

DELAWARE

Chicken pox	4
Diphtheria	2
Influenza	6
Measles	1
Mumps	1
Pneumonia	5
Scarlet fever	46
Smallpox	1
Tuberculosis	1
Whooping cough	3

FLORIDA

Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	26
Influenza	11
Malaria	3
Measles	66
Mumps	13
Pellagra	2
Pneumonia	13
Scarlet fever	21
Smallpox	59
Tuberculosis	22
Typhoid fever	8
Typhus fever	1
Whooping cough	17

GEORGIA

Cerebrospinal meningitis	5
Chicken pox	55
Diphtheria	24
Hookworm disease	2
Influenza	171
Malaria	16
Measles	119
Mumps	12
Paratyphoid fever	1
Pellagra	2
Scarlet fever	22
Septic sore throat	5
Smallpox	106
Trachoma	1
Tuberculosis	16
Typhoid fever	9
Typhus fever	4
Whooping cough	28

IDAHO

	Cases
Chicken pox	11
Diphtheria	2
Influenza	4
Measles	71
Mumps	6
Pneumonia	1
Scarlet fever	39
Septic sore throat	1
Tuberculosis	1
Typhoid fever	1
Whooping cough	1

ILLINOIS

Cerebrospinal meningitis:	
Cook County	1
Vermilion County	1
Chicken pox	391
Diphtheria	176
Influenza	66
Lethargic encephalitis:	
Peoria County	1
Tazewell County	1
Measles	1,774
Mumps	289
Pneumonia	382
Scarlet fever	438
Smallpox:	
Clay County	21
Scattering	16
Tuberculosis	321
Typhoid fever	17
Whooping cough	234

INDIANA

Chicken pox	205
Diphtheria	57
Influenza	51
Measles	236
Mumps	1
Pneumonia	14
Scarlet fever	366
Smallpox	216
Tuberculosis	33
Typhoid fever	2
Whooping cough	96

IOWA

Chicken pox	48
Diphtheria	28
Measles	745
Mumps	11
Pneumonia	2
Poliomyelitis—Rockwell City	1
Scarlet fever	92
Smallpox	6
Tuberculosis	5

KANSAS

Anthrax	1
Cerebrospinal meningitis:	
Ford	2
Plains	3
Chicken pox	165
Diphtheria	25
German measles	10

KANSAS—continued

	Cases
Influenza	7
Lethargic encephalitis	1
Measles	591
Mumps	24
Pneumonia	41
Poliomyelitis—Washington	1
Scarlet fever	192
Smallpox	29
Tuberculosis	33
Whooping cough	63

LOUISIANA

Cerebrospinal meningitis	1
Diphtheria	21
Influenza	13
Malaria	7
Measles	140
Pneumonia	28
Scarlet fever	9
Smallpox	12
Tuberculosis	23
Typhoid fever	4
Whooping cough	13

MAINE

Chicken pox	44
Diphtheria	4
German measles	30
Influenza	25
Measles	219
Mumps	13
Pneumonia	19
Scarlet fever	32
Septic sore throat	1
Tuberculosis	3
Typhoid fever	2
Vincent's angina	2
Whooping cough	71

MARYLAND [1]

Cerebrospinal meningitis	1
Chicken pox	104
Diphtheria	46
German measles	2
Influenza	69
Lethargic encephalitis	2
Measles	26
Mumps	16
Paratyphoid fever	4
Pneumonia (broncho)	60
Pneumonia (lobar)	51
Scarlet fever	87
Septic sore throat	5
Tuberculosis	37
Typhoid fever	8
Whooping cough	102

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	292
Conjunctivitis (suppurative)	7
Diphtheria	111
German measles	14
Influenza	21
Lethargic encephalitis	3

[1] Week ended Friday.

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MASSACHUSETTS—continued

	Cases
Malaria	1
Measles	169
Mumps	293
Ophthalmia neonatorum	23
Pneumonia (lobar)	113
Scarlet fever	450
Septic sore throat	2
Tuberculosis (pulmonary)	98
Tuberculosis (other forms)	23
Typhoid fever	7
Whooping cough	114

MICHIGAN

Diphtheria	139
Measles	219
Pneumonia	157
Scarlet fever	348
Smallpox	43
Tuberculosis	135
Typhoid fever	6
Whooping cough	91

MINNESOTA

Cerebrospinal meningitis	1
Chicken pox	177
Diphtheria	29
Measles	294
Pneumonia	6
Scarlet fever	275
Smallpox	4
Tuberculosis	53
Typhoid fever	3
Whooping cough	30

MISSISSIPPI

Diphtheria	13
Scarlet fever	17
Small pox	48
Typhoid fever	9

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	1
Chicken pox	55
Diphtheria	51
Influenza	8
Measles	201
Mumps	41
Pneumonia	2
Scarlet fever	142
Septic sore throat	1
Tetanus	1
Tuberculosis	24
Typhoid fever	5
Whooping cough	30

MONTANA

Cerebrospinal meningitis	7
Diphtheria	2
German measles	3
Measles	88
Mumps	14
Scarlet fever	116
Septic sore throat	1
Smallpox	33
Tuberculosis	9
Whooping cough	47

NEBRASKA

	Cases
Chicken pox	84
Diphtheria	6
German measles	13
Influenza	20
Measles	143
Mumps	73
Pneumonia	15
Scarlet fever	93
Septic sore throat	6
Smallpox	26
Tuberculosis	33
Typhoid fever	3
Whooping cough	41

NEW JERSEY

Cerebrospinal meningitis	1
Chicken pox	278
Diphtheria	102
Influenza	37
Measles	44
Pneumonia	134
Scarlet fever	331
Typhoid fever	1
Whooping cough	209

NEW MEXICO

Chicken pox	44
Diphtheria	2
German measles	23
Malaria	1
Measles	43
Mumps	57
Pneumonia	7
Poliomyelitis	1
Scarlet fever	21
Smallpox	2
Tuberculosis	27
Typhoid fever	3
Whooping cough	3

NEW YORK

(Exclusive of New York City)

Botulism	1
Cerebrospinal meningitis	2
Chicken pox	467
Diphtheria	103
German measles	173
Lethargic encephalitis	3
Measles	784
Mumps	386
Ophthalmia neonatorum	2
Pneumonia	336
Rabies (in animals)	2
Scarlet fever	334
Septic sore throat	9
Smallpox	14
Trachoma	1
Typhoid fever	18
Vincent's angina	23
Whooping cough	312

NORTH CAROLINA

	Cases
Chicken pox	203
Diphtheria	44
German measles	35
Measles	209
Scarlet fever	66
Septic sore throat	7
Smallpox	60
Typhoid fever	5
Whooping cough	457

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Cerebrospinal meningitis—McClain County	1
Chicken pox	23
Diphtheria	16
Influenza	209
Measles	98
Mumps	13
Pneumonia	98
Scarlet fever	65
Smallpox	39
Typhoid fever	9
Whooping cough	16

OREGON

Cerebrospinal meningitis	4
Chicken pox	33
Diphtheria	14
Influenza	180
Lethargic encephalitis	3
Malaria	1
Measles	64
Mumps	18
Pneumonia	[1] 13
Scarlet fever	77
Septic sore throat	2
Smallpox:	
Klamath County	12
Scattering	18
Tuberculosis	[1] 8
Typhoid fever	1
Whooping cough	14

PENNSYLVANIA

Anthrax—Chester County	1
Cerebrospinal meningitis—Pittsburgh	1
Chicken pox	1,060
Diphtheria	385
German measles	71
Impetigo contagiosa	15
Lethargic encephalitis	2
Measles	950
Mumps	292
Pneumonia	315
Poliomyelitis—Lebanon County	1
Scabies	6
Scarlet fever	303
Smallpox	2
Tetanus—Allegheny County	1
Tuberculosis	137
Typhoid fever	18
Whooping cough	423

RHODE ISLAND

Chicken pox	28
Diphtheria	10
Measles	1

[1] Deaths.

RHODE ISLAND—continued

	Cases
Mumps	4
Pneumonia	2
Scarlet fever	32
Tuberculosis	12
Whooping cough	3

SOUTH CAROLINA

Chicken pox	79
Diphtheria	24
Hookworm disease	7
Influenza	684
Malaria	45
Measles	11
Pellagra	8
Poliomyelitis	1
Scarlet fever	11
Smallpox	23
Tuberculosis	42
Typhoid fever	9
Whooping cough	110

TENNESSEE

Chicken pox	71
Diphtheria	19
Influenza	93
Malaria	2
Measles	179
Mumps	10
Ophthalmia neonatorum	2
Pellagra	3
Pneumonia	60
Poliomyelitis—Greene County	1
Scarlet fever	28
Smallpox	9
Tetanus	1
Trachoma	1
Tuberculosis	23
Typhoid fever	7
Whooping cough	80

TEXAS

Chicken pox	121
Dengue	2
Diphtheria	64
Influenza	174
Measles	9
Mumps	18
Pellagra	1
Pneumonia	19
Scarlet fever	37
Smallpox	334
Tuberculosis	35
Typhoid fever	1
Whooping cough	25

UTAH

Chicken pox	25
Diphtheria	13
Influenza	2
Measles	453
Mumps	2
Pneumonia	5
Scarlet fever	32
Smallpox	8
Whooping cough	1

VERMONT

Chicken pox	28
Diphtheria	2
Measles	101

VERMONT—continued

	Cases
Mumps	39
Scarlet fever	4
Whooping cough	11

WASHINGTON

Cerebrospinal meningitis	4
Chicken pox	98
Diphtheria	10
German measles	50
Impetigo contagiosa	1
Measles	189
Mumps	69
Pneumonia	1
Scarlet fever	159
Smallpox	64
Trachoma	1
Tuberculosis	28
Typhoid fever	4
Whooping cough	24

WEST VIRGINIA

Cerebrospinal meningitis—Charleston	1
Chicken pox	85
Diphtheria	23
Influenza	58
Measles	151
Scarlet fever	59
Smallpox	13
Tuberculosis	23
Typhoid fever	12
Whooping cough	92

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	94
Diphtheria	28
Influenza	1
Lethargic encephalitis	1
Measles	59
Mumps	49
Pneumonia	23
Scarlet fever	44
Whooping cough	25
Scattering:	
Cerebrospinal meningitis	5
Chicken pox	233
Diphtheria	9
German measles	17
Influenza	53
Measles	601
Mumps	102
Pneumonia	24
Scarlet fever	102
Smallpox	15
Tuberculosis	14
Typhoid fever	2
Whooping cough	115

WYOMING

Chicken pox	8
Diphtheria	1
German measles	41
Influenza	1
Measles	220
Mumps	75
Scarlet fever	20
Whooping cough	1

Reports for Week Ended January 29, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	69
Diphtheria	24
Influenza	1
Measles	1
Pneumonia	41
Scarlet fever	32
Tuberculosis	18
Whooping cough	9

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	47

NORTH DAKOTA—continued

	Cases
Diphtheria	8
Lethargic encephalitis	2
Measles	111
Mumps	12
Pneumonia	6
Scarlet fever	60
Smallpox	11
Tuberculosis	8
Whooping cough	4

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those State from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
December, 1926										
Delaware		7	2		3		1	108	0	5
South Dakota	3	33	3		328		1	298	39	9
Virginia	4	307	2,732	57	285	8	2	396	54	73
Washington	11	172	28		810		0	498	236	24

December, 1926

	Cases
Anthrax:	
Delaware	3
Chicken pox:	
Delaware	9
South Dakota	128
Virginia	688
Washington	591
Dysentery:	
Virginia	36
German measles:	
Washington	124
Hookworm disease:	
Virginia	11
Lethargic encephalitis:	
Washington	1
Mumps:	
South Dakota	4
Washington	259
Paratyphoid fever:	
Washington	1
Scabies:	
Washington	2
Trachoma:	
South Dakota	1
Whooping cough:	
Delaware	11
South Dakota	61
Virginia	1,154
Washington	47

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended January 22, 1927, 41 States reported 1,999 cases of diphtheria. For the week ended January 23, 1926, the same States reported 1,901 cases of this disease. One hundred and one cities, situated in all parts of the country, and having an estimated aggregate population of more than 30,900,000, reported 1,044 cases of diphtheria for the week ended January 22, 1927. Last year for the corresponding week they reported 828 cases. The esti-

mated expectancy for these cities was 1,134 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-eight States reported 9,757 cases of measles for the week ended January 22, 1927, and 13,737 cases of this disease for the week ended January 23, 1926. One hundred and one cities reported 2,643 cases of measles for the week this year and 7,800 cases last year.

Poliomyelitis.—The health officers of 42 States reported 20 cases of poliomyelitis for the week ended January 22, 1927. The same States reported 14 cases for the week ended January 23, 1926.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty-two States—this year, 5,526 cases; last year, 4,945 cases; 101 cities—this year, 2,274 cases; last year, 1,705 cases; estimated expectancy, 1,334 cases.

Smallpox.—For the week ended January 22, 1927, 42 States reported 840 cases of smallpox. Last year for the corresponding week they reported 1,031 cases. One hundred and one cities reported smallpox for the week as follows: 1927, 121 cases; 1926, 202 cases; estimated expectancy, 133 cases. One death from smallpox was reported by these cities for the week this year—at Kansas City, Mo.

Typhoid fever.—Two hundred and fifty-four cases of typhoid fever were reported for the week ended January 22, 1927, by 42 States. For the corresponding week of 1926, the same States reported 252 cases of this disease. One hundred and one cities reported 41 cases of typhoid fever for the week this year and 53 cases for the corresponding week last year. The estimated expectancy for these cities was 54 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 95 cities, with an estimated population of more than 30,280,000, as follows: 1927, 1,184 deaths; 1926, 1,247 deaths.

City reports for week ended January 22, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	26	2	1	1	0	2	0	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	161	0	0
Manchester	83,097	0	2	1	0	0	3	0	3
Vermont:									
Barre	10,008	3	0	0	0	0	21	0	1
Massachusetts:									
Boston	779,620	108	66	31	4	0	37	66	38
Fall River	128,993	6	6	4	1	0	0	3	3
Springfield	142,065	6	3	7	0	1	1	0	2
Worcester	190,757	9	6	3	0	0	8	1	10
Rhode Island:									
Pawtucket	69,760	0	1	1	0	0	0	0	3
Providence	267,918	0	10	10	0	0	1	0	9
Connecticut:									
Bridgeport	(1)	3	9	4	3	0	3	1	4
Hartford	160,197	6	8	3	2	1	2	0	12
New Haven	178,927	30	3	1		0	0	4	6
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	39	14	8		3	1	7	21
New York	5,873,356	287	209	220	143	25	12	265	221
Rochester	316,786	10	12	16		1	5	2	8
Syracuse	182,003	21	7	1		0	4	7	6
New Jersey:									
Camden	128,642	5	5	9	0	0	1	1	2
Newark	452,513	39	23	13	4	0	1	30	14
Trenton	132,020	0	6	1	3	1	1	0	9
Pennsylvania:									
Philadelphia	1,979,364	142	82	90		7	6	46	81
Pittsburgh	631,563	61	20	29		3	68	3	35
Reading	112,707	14	5	2		0	1	16	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	23	9	11	0	4	1	25	12
Cleveland	936,485	128	33	47	7	5	5	11	15
Columbus	279,836	24	5	12	0	4	1	0	8
Toledo	287,380	68	10	9	1	1	9	1	13
Indiana:									
Fort Wayne	97,846	3	4	2	0	1	27	0	9
Indianapolis	358,819	76	12	18	0	0	4	1	8
South Bend	80,091	7	1	0	0	0	18	0	2
Terre Haute	71,071	2	1	0	0	1	2	0	4
Illinois:									
Chicago	2,995,239	129	108	66	75	14	535	55	83
Peoria	81,564	7	1	8	0	1	61	6	2
Springfield	63,923	13	1	1	0	0	78	3	3
Michigan:									
Detroit	1,245,824	134	70	63	6	7	8	72	28
Flint	130,316	25	8	0	0	0	3	0	5
Grand Rapids	153,698	6	4	2	0	1	1	0	6

[1] No estimate made.

City reports for week ended January 22, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	18	2	1	0	0	46	33	0
Madison	46,385	27	0	0	0	0	1	0	0
Milwaukee	509,192	92	21	32	0	0	84	37	22
Racine	67,707	25	1	0	0	0	2	17	0
Superior	39,671	2	1	0	0	0	2	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	3	3	0	0	0	20	1	4
Minneapolis	425,435	191	23	13	0	1	1	2	9
St. Paul	246,001	46	16	2	0	0	17	1	9
Iowa:									
Davenport	52,469	1	1	0	0	--------	19	0	--------
Des Moines	141,441	0	4	4	0	--------	0	1	--------
Sioux City	76,411	12	1	0	0	--------	1	0	--------
Waterloo	36,771	17	1	0	0	--------	28	0	--------
Missouri:									
Kansas City	367,481	48	10	4	1	1	15	2	12
St. Joseph	78,342	1	4	1	0	0	0	0	8
St. Louis	821,543	24	55	48	1	0	7	6	--------
North Dakota:									
Fargo	26,403	1	0	0	0	0	5	0	1
South Dakota:									
Aberdeen	15,036	8	1	0	0	--------	4	0	--------
Sioux Falls	30,127	5	1	0	0	--------	1	0	--------
Nebraska:									
Lincoln	60,941	9	2	2	0	0	8	1	2
Omaha	211,768	15	5	3	0	0	42	20	5
Kansas:									
Topeka	55,411	25	2	2	0	0	4	0	2
Wichita	88,367	21	4	1	0	0	0	0	6
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	5	3	2	0	0	0	0	5
Maryland:									
Baltimore	796,296	128	32	39	39	4	4	9	58
Cumberland	33,741	0	1	1	0	0	0	0	2
Frederick	12,035	0	0	0	1	1	0	0	[illegible]
District of Columbia:									
Washington	497,906	64	21	13	1	1	4	0	27
Virginia:									
Lynchburg	30,395	11	1	2	0	1	19	0	2
Norfolk	(1)	8	2	1	0	0	14	2	9
Richmond	186,403	6	6	8	0	2	75	0	5
Roanoke	58,208	4	2	0	0	1	2	0	1
West Virginia:									
Charleston	49,019	9	2	0	1	0	0	0	1
Wheeling	56,208	4	1	0	0	0	0	0	7
North Carolina:									
Raleigh	30,371	13	1	1	0	0	3	0	2
Wilmington	37,061	9	1	1	0	0	2	3	2
Winston-Salem	69,031	14	1	1	0	0	0	5	3
South Carolina:									
Charleston	73,125	3	1	0	27	0	0	0	8
Columbia	41,225	9	1	1	0	--------	1	0	--------
Greenville	27,311	4	0	1	0	0	0	0	0
Georgia:									
Atlanta	(1)	3	4	12	34	1	35	0	16
Brunswick	16,809	0	0	0	0	0	0	0	0
Savannah	93,134	0	1	0	20	0	0	0	2
Florida:									
Miami	69,754	7	--------	6	0	0	1	7	3
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	2
Tampa	94,743	6	1	6	0	0	8	0	4

[1] No estimate made.

City reports for week ended January 22, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	2	0	1	0	0	0	0	2
Louisville	305,935	5	7	6	3	0	1	1	25
Tennessee:									
Memphis	174,533	33	5	5	0	0	7	0	6
Nashville	136,220	6	1	0	0	1	0	0	5
Alabama:									
Birmingham	205,670	11	3	15	7	1	15	3	9
Mobile	65,955	3	1	2	0	1	17	0	1
Montgomery	46,481	2	1	1	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	0	0	0		0	1	1
Little Rock	74,216	2	2	1	0	0	2	0	0
Louisiana:									
New Orleans	414,493	3	14	10	9	6	101	0	22
Shreveport	57,857	17	1	2	0	0	1	5	3
Oklahoma:									
Oklahoma City	(1)	0	2	0	18	0	0	0	3
Texas:									
Dallas	194,450	16	7	18	1	2	2	7	4
Galveston	48,375	0	1	0	0	1	0	0	4
Houston	164,954	4	5	9	0	1	0	1	6
San Antonio	198,069	2	2	1	0	0	2	0	7
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	30	0	0
Great Falls	29,883	7	1	0	0	0	3	0	1
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	1	1	0	0	0	0	17	3
Idaho:									
Boise	23,042	2	0	1	0	0	46	2	0
Colorado:									
Denver	280,911	21	11	8		5	213	2	11
Pueblo	43,787	3	3	0	0	1	0	0	4
New Mexico:									
Albuquerque	21,000	4	0	1	6	0	12	11	2
Arizona:									
Phoenix	38,669	0	1	0	0	0	1	0	6
Utah:									
Salt Lake City	130,948	29	3	4	0	0	272	1	5
Nevada:									
Reno	12,665	0	0	0	0	0	2	0	0
PACIFIC									
Washington:									
Seattle	(1)	29	7	1	0		3	44	
Spokane	108,897	9	4	2	0		150	0	
Tacoma	104,455	12	4	7	0	0	1	0	0
Oregon:									
Portland	282,383	12	10	11	8	0	15	2	12
California:									
Los Angeles	(1)	104	45	57	16	5	156	14	25
Sacramento	72,260	4	3	4	3	2	88	19	4
San Francisco	557,530	17	22	18	3	2	116	52	10

[1] No estimate made.

City reports for week ended January 22, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	1	0	0	0	2	1	0	0	7	17
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	2	9
Manchester	3	1	0	0	0	0	0	0	0	0	14
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	5
Massachusetts:											
Boston	61	158	0	0	0	11	1	1	0	15	245
Fall River	3	2	0	0	0	2	0	0	0	5	18
Springfield	9	7	0	0	0	1	0	0	0	0	31
Worcester	12	10	0	0	0	3	1	0	0	3	44
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	26
Providence	8	12	0	0	0	6	1	0	0	7	74
Connecticut:											
Bridgeport	8	28	0	0	0	9	0	0	0	0	35
Hartford	8	9	0	0	0	1	0	0	0	0	38
New Haven	11	3	0	0	0	1	0	0	0	0	46
MIDDLE ATLANTIC											
New York:											
Buffalo	25	16	1	0	0	5	1	0	0	4	163
New York	225	466	0	1	0	[1] 106	10	7	2	92	1,612
Rochester	14	21	0	0	0	2	1	0	0	6	70
Syracuse	15	10	0	0	0	0	0	0	0	5	48
New Jersey:											
Camden	5	4	0	0	0	1	0	0	0	1	25
Newark	26	73	0	1	0	4	1	1	0	34	98
Trenton	5	2	0	0	0	1	1	1	0	4	39
Pennsylvania:											
Philadelphia	86	131	0	0	0	26	4	2	1	31	612
Pittsburgh	44	20	1	0	0	11	1	0	0	20	228
Reading	2	5	0	0	0	0	0	0	0	7	24
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	33	1	0	0	7	1	0	0	1	148
Cleveland	41	54	2	0	0	19	1	3	0	34	198
Columbus	12	12	2	1	0	7	0	0	0	2	94
Toledo	16	23	1	0	0	6	0	1	0	27	84
Indiana:											
Fort Wayne	5	7	1	3	0	0	1	0	0	1	34
Indianapolis	9	22	12	13	0	7	0	0	0	15	107
South Bend	3	6	1	0	0	0	0	0	0	0	15
Terre Haute	3	5	1	0	0	0	0	0	0	0	27
Illinois:											
Chicago	142	134	2	2	0	64	4	3	0	58	767
Peoria	6	2	0	0	0	0	0	0	0	3	19
Springfield	2	3	0	0	0	2	0	0	0	2	27
Michigan:											
Detroit	97	122	3	2	0	19	2	1	0	72	282
Flint	9	22	1	4	0	1	0	0	0	1	20
Grand Rapids	12	15	1	1	0	2	1	1	0	4	43
Wisconsin:											
Kenosha	1	19	0	0	0	0	0	0	0	11	10
Madison	3	9	1	0	0	0	0	0	0	6	5
Milwaukee	31	39	2	0	0	9	0	1	0	48	113
Racine	6	6	0	0	0	2	0	0	0	8	11
Superior	3	5	3	0	0	3	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	15	1	0	0	1	0	0	0	0	18
Minneapolis	52	78	15	0	0	6	1	2	0	3	103
St. Paul	31	33	10	0	0	3	0	0	0	16	51
Iowa:											
Davenport	1	1	2	0			0	0		0	
Des Moines	7	10	2	1			0	0		0	
Sioux City	2	7	2	3			0	0		2	
Waterloo	2	0	1	0			0	0		4	

[1] Pulmonary tuberculosis only.

City reports for week ended January 22, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—con.											
Missouri:											
Kansas City	14	32	2	11	1	4	0	0	0	7	98
St. Joseph	3	4	0	0	0	1	0	0	0	1	28
St. Louis	38	54	3	2	0	10	1	0	0	17	215
North Dakota:											
Fargo	1	11	1	0	0	0	0	0	0	0	12
South Dakota:											
Aberdeen	0	4	0	0			0	0		0	
Sioux Falls	2	1	1	0			0	0		0	
Nebraska:											
Lincoln	3	5	0	0	0	0	0	0	0	1	13
Omaha	5	24	9	0	0	2	0	0	0	0	43
Kansas:											
Topeka	3	0	1	14	0	0	0	0	0	12	12
Wichita	4	3	1	0	0	1	0	0	0	3	26
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	30	0	0	0	2	0	0	0	1	31
Maryland:											
Baltimore	40	43	0	0	0	15	2	2	1	58	275
Cumberland	0	0	0	0	0	0	0	1	0	0	12
Frederick	0	1	0	0	0	0	0	0	0	1	3
District of Columbia:											
Washington	25	24	1	1	0	12	2	0	0	4	179
Virginia:											
Lynchburg	1	3	0	0	0	0	0	0	0	0	6
Norfolk	2	9	0	0	0	4	1	0	0	6	
Richmond	5	5	0	0	0	4	0	0	0	2	60
Roanoke	1	3	0	1	0	2	0	0	0	0	19
West Virginia:											
Charleston	0	4	0	0	0	0	0	0	0	6	15
Wheeling	1	3	0	0	0	0	0	0	0	4	20
North Carolina:											
Raleigh	1	4	1	0	0	0	0	0	0	17	9
Wilmington	0	1	0	0	0	0	0	0	0	8	13
Winston-Salem	1	6	4	0	0	3	0	0	0	53	16
South Carolina:											
Charleston	1	2	0	0	0	1	0	0	1	0	33
Columbia	1	1	1	3			0	0		4	
Greenville	1	0	0	0	0	0	0	0	0	2	1
Georgia:											
Atlanta	3	7	2	14	0	1	0	0	0	5	87
Brunswick	0	2	0	0	0	0	0	0	0	0	3
Savannah	1	5	1	0	0	3	1	1	1	0	30
Florida:											
Miami		6		2	0	0		1	0	5	36
St. Petersburg	0		1		0	2	0		0		18
Tampa	1	2	0	0	0	1	1	0	0	0	27
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	4	0	0	0	0	0	0	0	0	20
Louisville	5	7	1	0	0	6	0	0	0	22	99
Tennessee:											
Memphis	5	32	2	2	0	6	0	0	0	12	
Nashville	2	5	1	0	0	4	0	2	0	1	59
Alabama:											
Birmingham	4	13	4	2	0	1	1	0	0	2	65
Mobile	0	2	1	0	0	3	0	0	0	0	23
Montgomery	1	3	1	1	0	0	1	0	0	0	9
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	2	1	0		1	0	0		4	15
Little Rock	2	1	1	0	0	1	0	1	1	2	
Louisiana:											
New Orleans	5	7	0	0	0	16	3	0	0	0	189
Shreveport	0	3	2	0	0	0	0	0	0	0	20

City reports for week ended January 22, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Oklahoma City	2	0	2	2	0	2	0	0	0	0	33
Texas:											
Dallas	4	23	1	6	0	3	0	0	0	0	43
Galveston	0	2	1	1	0	0	0	0	0	0	21
Houston	2	6	1	8	0	4	0	0	0	5	59
San Antonio	0	3	0	0	0	16	1	0	0	0	69
MOUNTAIN											
Montana:											
Billings	2	0	1	0	0	0	0	0	0	0	5
Great Falls	2	15	1	0	0	0	1	0	0	0	7
Helena	1	0	0	0	0	0	0	2	0	0	4
Missoula	1	8	0	0	0	0	0	0	0	0	11
Idaho:											
Boise	2	5	0	0	0	0	0	1	0	0	5
Colorado:											
Denver	11	107	2	0	0	6	0	0	0	0	89
Pueblo	2	6	1	0	0	0	1	0	0	0	14
New Mexico:											
Albuquerque	1	3	0	0	0	7	0	0	0	2	16
Arizona:											
Phoenix	0	0	0	0	0	14	0	0	0	0	34
Utah:											
Salt Lake City	3	7	2	0	0	1	0	0	0	4	33
Nevada:											
Reno	0	2	[illegible]	0	0	0	0	0	0	0	8
PACIFIC											
Washington:											
Seattle	11	17	3	0			1	5		9	
Spokane	4	28	4	3			1	0		0	
Tacoma	3	3	3	13	0	2	0	0	0	5	25
Oregon:											
Portland	6	20	7	1	0	3	0	1	0	8	67
California:											
Los Angeles	24	52	5	6	0	18	1	2	0	8	258
Sacramento	1	0	1	1	0	1	0	0	0	0	29
San Francisco	14	22	2	1	0	14	1	1	0	13	173

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	1	1	0	0	0	1	0
Rhode Island:									
Providence	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York	0	0	5	3	0	0	1	2	1
New Jersey:									
Newark	0	0	0	0	0	0	1	1	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati [1]	1	0	0	0	0	0	0	0	0
Cleveland	0	0	0	0	0	0	0	1	0

[1] Rabies (human): 1 death at Cincinnati, Ohio, and 1 death at Atlanta, Ga.

City reports for week ended January 22, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—con.									
Illinois:									
Chicago	1	1	1	0	0	0	0	0	0
Michigan:									
Detroit	0	0	2	0	0	0	0	0	0
Wisconsin:									
Milwaukee	3	1	1	0	0	0	0	0	0
Racine	0	0	0	0	0	0	0	0	1
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	1	0
St. Paul	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	0	0	1	1	1	1	0	1	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	0	0	1	0	0	0	0	0
Georgia:									
Atlanta [1]	0	1	0	0	1	0	0	0	0
Savannah	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	0	0	--------	1	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	0	0	1	0	0	1	
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	1	1	0	0	0	0	0	0	0
Texas:									
Houston	0	0	0	0	1	1	0	0	0
MOUNTAIN									
Montana:									
Helena	2	0	0	0	0	0	0		0
Utah:									
Salt Lake City	2	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	1	--------	0	--------	0	--------	0	0	--------
Tacoma	1	0	0	0	0	0	0	0	0
Oregon:									
Portland	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	0	0	1	0	0	0	0
San Francisco	0	0	0	0	0	0	0	0	1

[1] Rabies (human). 1 death at Cincinnati, Ohio, and 1 death at Atlanta, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 22, 1927, compared with those for a like period ended January 23, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in

1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 19, 1926, to January 22, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
101 cities	122	[2] 163	132	177	170	[3] 199	146	[4] 187	142	176
New England	89	161	141	158	139	158	141	174	132	151
Middle Atlantic	108	139	126	171	182	183	151	177	138	192
East North Central	150	[5] 184	132	193	151	223	135	189	131	170
West North Central	184	113	160	165	288	189	258	159	210	147
South Atlantic	94	[3] 216	129	175	177	[3] 232	140	216	151	161
East South Central	74	150	110	187	52	138	67	250	72	153
West South Central	128	168	150	224	189	256	120	247	155	172
Mountain	166	137	111	137	182	126	128	[4] 122	155	117
Pacific	88	226	127	156	96	230	80	194	139	233

MEASLES CASE RATES

	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
101 cities	416	[2] 207	613	222	1,147	[3] 384	974	[4] 329	1,336	445
New England	1,579	168	2,406	184	3,087	253	2,861	195	2,566	548
Middle Atlantic	382	22	558	22	997	31	846	38	1,090	49
East North Central	537	[5] 241	753	260	1,763	416	1,303	380	2,071	516
West North Central	70	77	61	60	151	260	129	193	153	278
South Atlantic	240	[3] 62	470	180	1,278	[3] 214	1,345	203	2,457	303
East South Central	116	31	105	78	52	107	238	97	284	204
West South Central	9	103	0	13	0	189	17	306	13	453
Mountain	28	2,777	83	3,541	55	5,241	91	[4] 3,334	118	5,088
Pacific	36	884	47	701	64	1,521	51	1,482	64	1,346

SCARLET FEVER CASE RATES

	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
101 cities	203	[2] 253	225	268	269	[3] 319	286	[4] 367	292	383
New England	240	248	304	357	295	490	380	478	360	536
Middle Atlantic	146	212	168	234	210	286	238	339	237	369
East North Central	234	[5] 254	249	245	334	283	322	344	325	339
West North Central	438	371	509	385	583	451	557	558	678	518
South Atlantic	157	[3] 172	140	240	156	[3] 243	184	259	184	281
East South Central	168	244	100	176	119	234	140	214	202	336
West South Central	97	125	119	151	112	155	90	143	69	197
Mountain	213	974	250	892	237	953	319	[4] 1,161	374	1,349
Pacific	182	305	210	253	241	340	268	377	254	319

SMALLPOX CASE RATES

	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
101 cities	18	[2] 14	24	14	33	[3] 23	47	[4] 22	35	20
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	1	1	0	0	2	1	0	1
East North Central	25	[5] 16	23	7	48	32	37	21	33	17
West North Central	20	28	18	40	63	58	52	69	34	60
South Atlantic	10	[3] 30	25	41	43	[3] 29	67	51	56	34
East South Central	0	36	74	47	47	41	57	87	47	25
West South Central	9	26	22	22	52	42	146	25	99	63
Mountain	9	18	37	9	36	0	18	[4] 0	27	0
Pacific	130	43	152	22	110	60	284	37	193	63

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Terre Haute, Ind., and Norfolk, Va., not included.
[3] Norfolk, Va., not included.
[4] Boise, Idaho, not included.
[5] Terre Haute, Ind., not included.

Summary of weekly reports from cities, December 19, 1926, to January 22, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
101 cities	9	[2] 11	10	12	13	[3] 8	11	[4] 9	9	7
New England	10	40	7	24	31	9	2	21	9	2
Middle Atlantic	11	5	7	7	14	6	16	8	10	5
East North Central	7	[5] 4	6	5	11	5	8	1	3	6
West North Central	4	10	6	4	2	8	4	6	4	4
South Atlantic	12	[2] 16	12	34	9	[3] 8	7	16	7	7
East South Central	5	16	32	21	16	25	16	15	5	10
West South Central	9	17	48	17	21	25	13	17	47	4
Mountain	18	0	9	27	9	9	9	[4] 9	0	27
Pacific	8	22	8	16	11	8	13	21	16	21

INFLUENZA DEATH RATES

	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
95 cities	12	[2] 15	15	17	21	[3] 20	23	[6] 21	20	21
New England	12	7	12	21	9	16	14	14	7	5
Middle Atlantic	9	14	10	21	18	18	16	20	14	20
East North Central	8	[5] 10	8	15	12	17	11	16	8	25
West North Central	6	11	15	8	8	15	19	10	11	4
South Atlantic	17	[3] 34	19	17	15	[3] 18	23	24	40	20
East South Central	32	36	32	26	83	46	88	36	57	15
West South Central	48	19	44	14	44	43	75	43	88	43
Mountain	28	27	28	46	46	63	64	[4] 103	18	54
Pacific	15	4	40	0	57	10	46	[7] 15	39	31

PNEUMONIA DEATH RATES

	Dec. 26, 1925	Dec. 25, 1926	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927
95 cities	136	[2] 137	186	163	220	[3] 196	211	[6] 180	199	183
New England	165	151	213	173	245	181	208	190	210	207
Middle Atlantic	145	166	188	179	229	209	236	205	228	197
East North Central	101	[5] 111	145	134	177	170	153	152	139	138
West North Central	99	91	127	118	141	116	127	125	82	116
South Atlantic	205	[3] 152	267	186	291	[3] 237	278	193	289	283
East South Central	142	109	263	192	331	204	284	199	228	245
West South Central	174	90	276	151	313	241	331	181	291	202
Mountain	203	164	268	200	128	369	328	[4] 206	273	216
Pacific	87	149	138	199	219	210	166	[7] 178	184	134

[2] Terre Haute, Ind., and Norfolk, Va., not included.
[3] Norfolk, Va., not included.
[4] Boise, Idaho, not included.
[5] Terre Haute, Ind., not included.
[6] Boise, Idaho, and Tacoma, Wash., not included.
[7] Tacoma, Wash., not included.

N mber of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,248,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended January 8, 1927.—The following report for the week ended January 8, 1927, was transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon:						
Colombo	1	0	0	0	0	0
British India:						
Karachi	----	0	----	0	12	0
Bombay	----	0	----	0	8	5
Madras	----	0	----	4	1	1
Calcutta	----	0	----	54	214	89
Rangoon	----	2	----	1	1	0
Negapatam	----	0	----	2	0	0
Tuticorin	----	0	----	0	2	0
Vitagapatam	----	0	----	0	2	1
Straits Settlements:						
Singapore	0	0	0	0	1	0

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Dutch East Indies:						
Macassar	0	0	0	0	0	0
Surabaya	1	1	0	0	0	0
Semarang	1	1	0	0	0	0
Padang	0	0	0	0	9	0
Siam:						
Bangkok	0	0	0	0	3	2
French Indo-China:						
Haiphong	0	0	----	6	0	0
U. S. S. R.:						
Vladivostok	0	0	0	0	9	0
Mauritius:						
Port Louis	0	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Chittagong, Cochin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Palembang, Belawan-Deli, Cheribon, Pontianak, Tarakan, Menado, Banjermasm.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Saigon and Cholon, Tourane

Philippine Islands.—Manila Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Hongkong.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.

Kwantung.—Port Arthur, Dairen.

Japan.—Yokohama, Osaka, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Dutch East Indies.—Samarinda, Balikpapan.
Madagascar.—Tamatave, Majunga.
Reunion.—St. Denis.

Belated information

Week ended December 18—
French India.—Pondicherry, cholera, 1 death.
Week ended January 1—
Reunion.—St. Denis, plague, 1 death.
British India.—Madras, plague, 2 cases. Calcutta, smallpox, 117 cases.

ANGLO-EGYPTIAN SUDAN

Relapsing fever.—The following information regarding the relapsing fever epidemic in Darfur was received by the health section of the Secretariat of the League of Nations from the Sudan Medical Service:

An outbreak of relapsing fever was first reported from Kebkebia on September 11, 1926, and a similar outbreak was reported from Nyala on September 12, 1926. A provisional diagnosis of relapsing fever was made which was confirmed microscopically on September 28. By October 4, investigation had shown that the epidemic was affecting Zalingei, Western Nyala, South Masalit, and Kebkebia districts, an area of 20,000 square miles. Up to the end of November, no further extension of the area affected had been reported.

The case mortality in untreated cases is reported as being 60–80 per cent, but this is perhaps too high a figure, as many milder cases of the diseases probably remain unreported. Cases treated with novarsenobenzol usually recover.

In the areas in which it has been possible to collect statistics, the proportion of deaths to the total population averages 22.9 per cent; actually 2,092 deaths had occurred in a population of 9,105.

Quarantine delousing stations have been established, and traveling delousing groups are in operation in the infected area, which is being covered by British physicians in motor cars. Quarantine delousing stations have also been established on the main road leading east into Kordofan and on the main roads in Kordofan and the Nuba Mountains Provinces.

CANADA

Communicable diseases—Week ended January 22, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended January 22, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				3	1			4
Lethargic encephalitis					1			1
Influenza	21				2	2		25
Poliomyelitis			1					1
Smallpox				41	3	8	12	64
Typhoid fever		1	11	12	1		1	26

Vital statistics—Quebec—November, 1926.—Births and deaths in the Province of Quebec for the month of November, 1926, have been reported as follows:

Estimated population	2,570,000	Deaths from—Continued.	
Births	5,892	Diphtheria	58
Birth rate per 1,000 population	27.51	Heart disease	357
Deaths (all causes)	2,535	Influenza	67
Death rate per 1,000 population	11.83	Measles	24
Deaths under 1 year	732	Scarlet fever	15
Infant mortality rate	124.23	Syphilis	9
Deaths from—		Tuberculosis (pulmonary)	163
Cancer	133	Tuberculosis (other forms)	40
Cerebrospinal meningitis	2	Typhoid fever	18
Diabetes	38	Whooping cough	57

CANARY ISLANDS

Plague—Las Palmas—San Miguel—January 8, 1927.—Under date of January 8, 1927, two cases of plague were reported in the Canary Islands, of which one occurred at San Miguel, 80 kilometers distant from Santa Cruz de Teneriffe, and one at Las Palmas.

CHINA

Pneumonic plague—Mongolia.[1]—According to information received under date of January 8, 1927, the situation regarding pneumonic plague in Mongolia was stated to be less serious than reported by the press and there was no fear of an invasion of North Manchuria by the disease.

ECUADOR

Plague—Guayaquil—December 16-31, 1926.—During the period December 16 to 31, 1926, eight cases of plague with three deaths were reported at Guayaquil, Ecuador.

Plague-infected rats.—During the same period, of 12,653 rats taken, 53 were found plague infected.

EGYPT

Plague—January 4-5, 1927.—Plague has been reported in Egpyt as follows: Gharbia Province—January 4, one case, fatal, septicemic; Charkia Province—January 5, one case, fatal, septicemic, occurring at Zagazig (Tel-el-Kebir).

Cases of previous occurrence.—On January 5, 1927, 10 cases of plague were reported from Marsa Matrah and vicinity, reported according to date of occurrence as follows: December 23, 1926—five cases; December 26—one case; December 27 and 29—two cases each. These cases were bubonic in type.

MADAGASCAR

Plague—November 1-15, 1926.—During the period November 1 to 15, 1926, 118 cases of plague, with 105 deaths, were reported in the Island of Madagascar. The distribution of occurrence according to

[1] See Public Health Reports, Dec. 31, 1926, p. 3098; February 4, 1927, p. 359; and this issue, p. 423.

type showed as follows: Bubonic—51 cases; pneumonic, 41; septicemic, 26. The occurrence was reported in three provinces, with the greatest number of cases (82) in the interior province of Tananarive, exclusive of 13 cases occurring in the town of Tananarive..

MALTA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Island of Malta as follows:

Disease	Cases	Disease	Cases
Bronchopneumonia	12	Pneumonia	5
Chicken pox	2	Scarlet fever	4
Diphtheria	4	Trachoma	19
Erysipelas	4	Tuberculosis	20
Influenza	4	Typhoid fever	45
Malta fever	34	Whooping cough	40

Population civil, estimated, 225,242.

POLAND

Typhus fever—October 31–November 27, 1926.—During the period October 31–November 27, 1926, typhus fever was reported in Poland in the districts of Bialystok, Stanislawow, and Warsaw, with 16, 52, and 45 cases, respectively, the fatalities numbering one in Bialystok, four in Stanislawow, and five in Warsaw.

Typhus fever—Kielce district.—During the period November 28 to December 4, 1926, 30 cases of typhus fever with 3 deaths were reported in the district of Kielce, Poland.

SENEGAL

Yellow fever—Rufisque—January 2–8, 1927.—During the week ended January 8, 1927, three fatal cases of yellow fever were reported at Rufisque, Senegal. The last case was reported January 4, 1927.

SPAIN

Mortality from communicable diseases—Madrid—Year 1926.—During the year ended December 31, 1926, 2,714 deaths from communicable diseases were reported in Madrid, Spain, in a total mortality from all causes of 15,905. The occurrence was distributed according to causes of death as follows:

Disease	Deaths	Disease	Deaths
Diphtheria	77	Smallpox	1
Measles	291	Tuberculosis (all forms)	2,092
Scarlet fever	105	Typhoid fever	148

TUNISIA

Communicable diseases—Tunis—December 21–31, 1926.—During the period December 21 to 31, 1926, communicable diseases were reported at Tunis, Tunisia, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Scarlet fever	4
Diphtheria	3	Tuberculosis	16
Relapsing fever	1	Typhoid fever	3

Population, estimated, 250,000.

Plague—Sfax—Summary October–December, 1926.—Information dated January 7, 1927, shows that for the period October–December, 1926, 304 cases of plague with 128 deaths were reported at Sfax, Tunisia, with four cases remaining under treatment December 31, 1926.

UNION OF SOUTH AFRICA

Plague—Orange Free State—December 12–18, 1926.—During the week ended December 18, 1926, a case of plague was reported in the Orange Free State, occurring in a European on a farm. Direct contact with a fatal case occurring on the same farm and reported for the previous week, was stated.

VENEZUELA

Mortality from malaria and typhoid fever—Puerto Cabello—December, 1926.—During the month of December, 1926, three deaths from malaria and seven from typhoid fever were reported at Puerto Cabello, Venezuela. Population, 15,000.

YUGOSLAVIA (KINGDOM OF THE SERBS, CROATS, AND SLOVENES)

Public Health Service.—Information received under date of October 25, 1926, shows that the public health work in Yugoslavia is carried out through the Ministry of Public Health, which was established at the close of the war period to coordinate the various health organizations previously existing in the several divisions of the kingdom, and to create a uniform system of public health service. The ministry appointed provincial health inspectors and district physicians. The general health service is divided into two branches; the service of hygiene and the sanitary service. The functions of these two branches may be summarized as follows:

Service of hygiene.—This service supervises and directs the work of hospital relief, institutions of social medicine, and stations for epidemiological research and is charged with the development of physical culture and the supervision of the general medical staff.

Social medicine.—This branch includes the study of social disease problems and the collection and dissemination of medical data. Two central institutes of social medicine function, one at Zagreb and one at Belgrade, and the work is carried on by 100 stations operating under these central stations. The increasing number of reported cases of disease indicates a more active system of collecting data rather than increased prevalence of these diseases.

Hospital relief.—At the close of the year 1925 the number of hospitals in Yugoslavia and their capacity were approximately as follows:

Province	Hospitals	Beds
Bosnia-Herzegovina	35	2,065
Croatia-Slavonia	25	5,266
Dalmatia	10	926
Montenegro	6	340
Serbia and South Serbia	58	4,326
Slovenia	38	5,738
Voivodina	33	2,160
Total	205	20,821

The number of hospitals is stated to be inadequate for the present requirements of the population. The health service is endeavoring, by improving living conditions, to reduce the necessity for hospital care.

Section of bacteriology and epidemiology.—A report on the status of infectious diseases in Serbia in the year 1912 shows that 48 per cent of the deaths occurring in Serbia were caused by epidemic diseases. Since the unification of the Kingdom the Ministry of Public Health has been active in organizing bacteriological and epidemiological institutes throughout the country. A central institute was established at Belgrade, Serbia, for the investigation and eradication of disease. Provincial epidemiological institutes function at Sarajevo, Nish, Novi Sad, Osijekh, and Zagreb. Twenty-two bacteriological stations have been established at various points, all being branches of the provincial institutes, for the study of local conditions and for carrying on popular education in the methods of combating disease. Close attention is given to the suppression of malaria, tuberculosis, trachoma, and venereal diseases, and to the subject of child welfare.

Malaria.—A conservative estimate of malaria prevalence at the present time shows about one million of the population to be affected with malaria. A central institute for the study of malarial affections exists at Skopilje, to which place the institute of tropical medicine at Belgrade, which had functioned for a period of three years, was transferred. An institute for study of malaria also exists at Trogir (Dalmatia), and at two localities in the State of Macedonia stations for malarial study have been created. In addition to these units,

40 auxiliary stations or laboratories operate at different localities in the country, the entire energies of which are devoted to the eradication of malaria. The measures instituted are drainage of marshy land, the administration of quinine, propaganda, mosquito destruction, and improved sanitary conditions.

Tuberculosis.—Tuberculosis is stated to be widespread throughout the Kingdom. The fight against this disease is carried on mainly through 32 dispensaries situated in various parts of the country. These dispensaries give instruction in the means of avoiding infection and in caring for the tuberculous and preventing spread of the disease. Several sanatoriums exist in the Kingdom. No statistics are available as to the mortality from tuberculosis but a relatively high mortality is believed to exist.

The following table shows the reduction in the prevalence of smallpox, typhoid fever, typhus fever, and dysentery during the last seven years.

Year	Smallpox	Typhoid fever	Typhus fever	Dysentery
1919	5, 278	12, 198		17, 532
1920	4, 156	1, 415	1, 582	11, 143
1921	2, 119	1, 071	1, 054	13, 269
1922	528	268	232	2, 274
1923	1, 042	352	351	3, 929
1924	300	404	319	3, 104
1925	14	4, 209	388	1, 311

Trachoma and rabies.—Eighteen stations are stated to be engaged in the treatment of trachoma, and six Pasteur institutes in 1924 treated 5,705 cases. No statistics are presented for results of the treatment for trachoma.

Venereal disease.—Venereal disease was stated to be very prevalent in the Kingdom. The treatment is carried out through 51 specially prepared dispensaries which endeavor to locate, cure, and control cases of these diseases, and also to popularize the use of prophylactic measures.

Infant mortality.—Data in regard to infant mortality are not complete, but they indicate a mortality among infants of from 17 to 25 per cent depending upon regional and social conditions. A special institute for the social and hygienic protection of children has been organized at Ljubljana and for study of this subject. Special dispensaries for treatment of children have been organized at Belgrade, Novi Sad, Zagreb, Ljubljana, Subotica, Krusovac, Sarajevo, and other large towns in the Kingdom. Efforts are being made to improve sanitary conditions in maternity cases and to insure proper care of the health of children at home and in schools.

Sanitary service.—No organization for sanitary service existed previously to the organization of the public health service. The prob-

lems studied so far relate to the sanitation of from 20 to 30 villages annually. Adequate water supply and drainage are to be supplied in these localities and popular instruction in sanitary requirements will be conducted by means of lectures and the distribution of publications. A textbook on elementary hygiene and sanitation has been introduced into the primary and secondary schools.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended February 11, 1927[1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Calcutta	Dec. 12-18	76	51	
Siam				Dec. 12-18, 1926: Cases, 5; deaths, 4. Apr. 1-Dec. 18, 1926; Cases, 7,806; deaths, 5,142.
Bangkok	Dec. 12-18	1		
Straits Settlements:				
Singapore	Nov. 21-Dec. 4	3	2	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Bona	Jan. 11	1		
Brazil:				
Rio de Janeiro	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Canary Islands:				
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Ceylon:				
Colombo	Dec. 5-11	1		
Ecuador:				
Guayaquil	Dec. 16-31	8	3	Rats taken: 12,653; found plague infected, 53.
Egypt:				
Charkia Province	Jan. 5	1	1	Septicemic. At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	Septicemic.
Marsa Matrah	Dec. 23-29	10		Bubonic. Reported Jan. 5, 1927.
Java:				
Batavia	Dec. 12-18	15	16	Batavia Province.
Surabaya	Nov. 28-Dec. 4	1	1	
Madagascar				Nov. 1-15, 1926: Cases, 118; deaths 105.
Itasy Province	Nov. 1-15	6	6	Bubonic, pneumonic, septicemic.
Moramanga	do	17	11	Do.
Tananarive Town	do	13	12	Bubonic, pneumonic.
Other localities	do	82	76	Bubonic, pneumonic, septicemic.
Siam	Dec. 12-18	1	2	Apr. 1-Dec. 12, 1926: Cases, 25; deaths, 19.
Syria:				
Beirut	Dec. 11-20	1		
Tunisia:				
Sfax	Oct. 1-Dec. 31	304	128	
Union of South Africa:				
Orange Free State—				
Bothaville District	Dec. 12-18	1		European. On farm; in direct contact with fatal case reported for previous week.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended February 11, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Dec. 21-31	2		
Canada:				
Alberta	Jan. 16-22	12		
Manitoba	do	3		
Ontario	do	41		
Saskatchewan	do	8		
Regina	do	1		
France:				
Paris	Dec. 20-31	3	1	
Great Britain:				
England and Wales	Jan. 2-8			Cases, 412.
Newcastle on Tyne	do	1		
Guatemala:				
Guatemala City	Nov. 1-30		1	
Do	Dec. 1-31		14	
India:				
Calcutta	Dec. 12-18	97	62	
Karachi	Dec. 19-25	1	1	
Iraq:				
Baghdad	Nov. 28-Dec. 4	1	1	
Italy:				
Genoa	Dec. 20-31	1		
Portugal:				
Lisbon	Jan. 2-8	3		
Siam	Dec. 12-18	3	1	Apr. 1-Dec. 18, 1926: Cases, 708; deaths, 266.
Bangkok	do	3	1	
Sierra Leone:				
Manowa	Dec. 1-15	1		Pendembu district.
Straits Settlements:				
Singapore	Nov. 21-27	1		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Egypt:				
Alexandria	Dec. 3-9	1		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo City	do	5	1	
Mexico:				
Aguascalientes	Jan. 9-15	1		
Palestine:				
Jerusalem	Sept. 1-30	4		
Do	Oct. 1-30	15		
Poland:				
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Union of South Africa:				
Cape Province	Dec. 12-18			Outbreak.

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Sept. 1-30	1	1	
Nigeria	do	1		
Senegal	Dec. 19-25	3	3	
Gunguineo	Dec. 7	1	1	
Rufisque	Jan. 2-8	3	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 4, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14-20			Present.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-30	231	143	
French Settlements in India	Aug. 29-Oct. 30	128	94	
India	Oct. 10-Nov. 13			Cases, 7,093; deaths, 4,170.
Calcutta	Oct. 31-Dec. 11	181	147	
Rangoon	Nov. 21-Dec. 11	4	3	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925; Cases, none.
Cambodia	do	571	352	One European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15
Laos	do	24	21	July, 1925. One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-31	1		
Siam	Oct. 31-Nov. 6			Case, 1.
Do	Apr. 1-Dec. 4			Cases, 7,792, deaths, 5,130.
Bangkok	Oct. 31-Dec. 4	7	2	
Straits Settlements	July 25-Oct. 16		60	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
British East Africa:				
Tanganyika Territory	Nov. 21-27	6	6	
Uganda	Sept. 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Ceylon:				
Colombo	Nov. 14-Dec. 4	2	1	Two plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 15	18	5	Rats taken, 37,963; found infected, 131.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Kafr el Sheikh	Dec. 3-9	2		
Tanta District	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Nov. 13			Cases, 7,985; deaths, 4,660.
Bombay	Nov. 21-27	1	1	
Madras Presidency	Oct. 31-Dec. 4	415	212	
Rangoon	Nov. 14-Dec. 4	7	6	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-Dec. 11	48	45	Province.
Surabaya	Oct. 24-Nov. 6	8	8	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 4, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	do	2	2	
Maevatanana	do	10	10	
Moramanga	do	21	15	
Tamatave	do	3	1	
Tananarive	do			Cases, 85; deaths, 79.
Tananarive Town	do	13	13	
Nigeria	Aug. 1-Sept. 30	402	441	
Peru	Nov. 1-30			Cases, 24; deaths, 4.
Departments—				
Cajamarca	do			Present.
Ica—				
Chincha	do	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Lima	do			Cases, 30; deaths, 4. Present in Cajatambo and Chancay Provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Aug. 31	19		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Syria:				
Beirut	Nov. 11-Dec. 10	2		
Tunisia	Nov. 1-30	188		
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-20	1		Native. On farm.
Middleburg District	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville District	do	1	1	European.
Hoopstad District	Nov. 7-13	1	1	Native.
Do	Dec. 5-11	1	1	Do.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20			Cases, 477.
Algiers	Dec. 11-20	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 11	57	3	
Rio de Janeiro	Nov. 14-Dec. 25	140	64	
Sao Paulo	Aug. 23-Oct. 24	12	9	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-15	72		
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-15	16		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-17	7		
Edmonton	Dec. 1-31	4		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-15	4		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-22	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-15	46		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-15	1		
Toronto	Dec. 14-25	14		
Do	Jan. 1-15	25	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-15	7		
China:				
Chungking	Nov. 7-Dec. 11			Present.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Harbin	Dec. 16-22	1		
Mukden	Dec. 5-11	1		
Swatow	Nov. 21-27			Do.
Nanking	Dec. 12-25			Do.
Chosen	Aug. 1-Sept. 30	42	14	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Oct. 31	165		
Paris	Dec. 1-20	7	2	
French Settlements in India	Aug. 29-Nov. 30	83	83	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Newcastle-on-Tyne	Dec. 5-11	2		
Sheffield	Nov. 28-Jan. 1	60		
Greece	Nov. 1-30	20		
Athens	Dec. 1-31	14	2	
India	Oct. 10-Nov. 13			Cases, 3,967; deaths, 988.
Bombay	Nov. 7-Dec. 18	22	16	
Calcutta	Oct. 31-Dec. 11	142	98	
Madras	Nov. 21-Dec. 25	23	2	
Rangoon	Nov. 28-Dec. 11	1	1	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Nov. 20	3	2	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Oct. 23	12		
Jamaica	Nov. 26-Dec. 25	34		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 27	10	1	
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 21-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Jan. 8	1		Do.
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-15		2	
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-8		4	
Nigeria	Aug. 1-Sept. 30	61	3	
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept. 30	7	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Siam	Apr. 1-Dec 4			Cases, 697; deaths, 261.
Bangkok	Oct 31-Dec. 4	18	6	
Straits Settlements:				
Singapore	Oct. 31-Nov. 20	2		
Tunisia	Oct. 1-Nov. 20	7		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20	22		
Bulgaria	July 1-Oct. 31	23	3	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-Sept 30	15		
Seoul	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 30	15	2	
Italy	Aug. 29-Sept. 23	3		
Lithuania	Sept. 1-Oct. 31	17	2	
Mexico	July 1-Aug. 31			Deaths, 46.
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-8	4		Do.
Nigeria	Sept. 1-30	1		
Palestine:				
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Jaffa	Nov. 23-Dec. 20	6		
Nazareth	Nov. 16-Dec. 20	7		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
Rumania	Aug. 1-Oct 31	114	6	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Turkey:				
Constantinople	Dec. 12-25	3		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 4			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreak. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-30	9		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-31	7	2	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	In European.
Rufisque	Nov. 27	1	1	
Upper Volta:				
Gaoua district	Oct 25	2		

X

TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 7

FEBRUARY 18 - 1927

SPECIAL ARTICLES

Paris Green Applied by Airplane in Mosquito Control

The Preparation and Use of Investigation Forms

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 FEBRUARY 18, 1927 NO. 7

INFLUENZA PREVALENCE

Information received from the health section of the League of Nations under date of February 10, 1927, shows an increase in influenza prevalence in Bulgaria, with more than 100,000 cases and 400 deaths reported during the first week in February. Increased prevalence was noted especially at Bourgas and Plevna.

One hundred and five great towns of England and Wales report 818 deaths during the first week of February. The disease was decreasing in London.

Moderate increases were reported for Czechoslovakia, eastern Hungary, and Portugal, and marked increase was reported for Japan.

The latest detailed reports relative to influenza in foreign countries are printed on pages 516–519, and a table comparing the prevalence of the disease in the United States during the first four weeks of January of the years 1925, 1926, and 1927 is given on page 503.

PARIS GREEN APPLIED BY AIRPLANE IN THE CONTROL OF ANOPHELES PRODUCTION

By L. L. WILLIAMS, JR., *Surgeon, United States Public Health Service,* and S. S. COOK *Lieutenant Commander, Medical Corps, United States Navy*

In February, 1926, preparations were made for attempting complete control of mosquitoes at the marine barracks at Quantico, Va. The presence of malaria and the infestation of mosquitoes made such work necessary. The type of endemic malaria in that section is mild, consisting mostly of benign tertian. Men return to the station from duty in Haiti, Cuba, and other tropical posts where virulent types of malaria are prevalent; and without *Anopheles* control there is constant possibility of locally disseminating pernicious malaria.

Prior to the building of the camp no local records were kept. Old inhabitants state that the village of Quantico had the reputation of being the "worst hole for malaria on the Potomac."

Records of the two counties and the post show a moderate amount of malaria for the past few years, as shown in the table below.

	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Prince William County	------	------	------	------	62	33	22	14	26	3
Stafford County	------	------	------	------	27	22	10	27	14	7
Marine barracks	------	------	------	------	------	121	48	30	28	3

Aside from the possibility of malarial transmission, the mosquitoes have been very annoying, at times becoming so numerous as to be almost unbearable. Dr. H. R. Carter (1), in 1917, reported a large flight of pestiferous mosquitoes, necessitating the screening of all barracks. We have been informed by various persons of the post that, even in screened houses, the use of mosquito nets and repellents, such as citronella oil, has been necessary.

Topographical conditions surrounding Quantico, Va., afford an infinite variety of mosquito-breeding areas. The marine barracks are situated on the western bank of the Potomac River, about 30 miles south of Washington. The military reservation comprises 5,500 acres in Prince William and Stafford counties, and is the base for the East Coast Expeditionary Forces. In point of numbers, this is one of the largest military posts within the continental limits of the United States, having a personnel of approximately 5,000—a small city in size.

The western bank of this portion of the Potomac rises abruptly to an elevation of about 20 feet, then flattens out, forming a narrow plateau about one-quarter of a mile wide. From here rises a series of steep, knobby hills and short ridges to an elevation of 150 feet. The hilly section is scarred with numerous deep ravines, dotted with potholes, through which there is no current except during rains. On the plateau the brooks become swamps before entering the river. The creeks are free-running streams until they near the river, when they widen into swamps, then tidal marshes, and finally become comparatively open bays with narrow outlets.

The barracks, quarters, and warehouses are situated on the Potomac between two creeks. To the north is Quantico Creek and to the south is Chopawamsic. Both of these creeks well illustrate the unusual mosquito-breeding facilities of this whole area. About 2 miles west of the Potomac River, each creek becomes a swamp with innumerable pools and sluggish water ways. A mile from the river the tides are felt and the swamp becomes a broad marsh; the lower half mile is a broad bay with a narrow outlet into the Potomac.

Through the post run three smaller streams—Little Creek, Camp Creek, and Muddy Run. The whole area of the reservation is full of depressions, both natural and artificial, which fill during every rain and supply breeding places for enormous numbers of pestiferous mosquitoes.

History of Control Measures

Prior to 1926 all active measures for mosquito control were carried on only in the area between Chopawamsic and Quantico Creeks. Reliance was placed on the thorough screening of barracks and quarters and on the extensive drainage and oiling of the swamps and streams within the post. In 1917 Doctor Carter (1) advised that the eel grass mats in Quantico and Chopawamsic Bays be either raked out or dragged into the current.[1]

The records of 1918 show Ebert's attempt with many bubbling oil cans on the bottom delivering oil beneath the grass mats. Apparently these were unsatisfactory, as there is no record of their further use. Subaqueous saws were being used at that time with success at Chickamauga, Ga. (2), and were used at Quantico during that season. Doctor Carter (3) reported that this saw was successfully used in cutting water lilies, lotus, and eel grass. However, the year's report for 1918 ends with the hope that they might be able next season to cut all of the eel grass with subaqueous saws. No records can be found for 1919 and 1920, and the malaria work for 1921 is dismissed with the statement that the malaria rate among the troops was 51.23 per 1,000.

In 1922 when arsenic was first reported as of use in controlling Anopheles breeding, its application on the bays here must have appealed to those in charge. One hundred pounds of Paris green were purchased and mixed with road dust. This was thrown over Chopawamsic and Little Creeks in six separate dustings during the summer. No check on results was attempted. It was believed to be effective at the time; but there were 124 cases of malaria that season, and the experiment was not repeated. From 1923 through 1925 the records show that large amounts of oil were distributed within the camp proper, and some ditching was done. No serious attempt had as yet been made to control mosquito production from the bays at the mouths of Quantico or Chopawamsic Creeks.

In 1926 work within the camp was carried on as in previous years and, in addition, we controlled the breeding of *Anopheles quadrimaculatus* in Quantico and Chopawamsic Bays. The Marine Corps furnished all the necessary labor, transportation, and larvicides; direction of the work, under the post surgeon, Capt. W. M. Garton, M. C., U. S. Navy, was placed in the hands of the Chief of the Department of Sanitation. The Public Health Service, upon the request of the Bureau of Medicine and Surgery, detailed one officer and two inspectors from its malaria field force to advise the camp authorities and to make a study of the control work and its effectiveness.

[1] We attempted this in 1926 with 16-foot lengths of 2 by 4s studded with nails. They were dragged through the eel grass and lilies until a path approximately 100 feet wide had been covered. This required four hours' time of 15 men with six sickles, a motor boat, and a row boat. At the end of this time, thoroughly wearied, the attempt was abandoned. The path was very poorly cleared.

The cooperating forces mapped out the campaign for the ensuing season in three steps:

(*a*) Drainage within the camp.
(*b*) Oiling for local pest control.
(*c*) The control of Anopheles breeding in the bays of Quantico and Chopawamsic Creeks.

Control Problem for 1926

There are three general types of breeding areas within the reservation, namely, (1) temporary puddles and containers, (2) the swampy upper reaches of Chopawamsic and Quantico Creeks; the lower swampy ends of Little Creek, Camp Creek, and Muddy Run; and (3) the open, bay-like mouths of Chopawamsic and Quantico Creeks.

The first type, temporary pools and containers, will not be discussed here except to say that they were innumerable and that production of the various *Culex*, *Aedes*, and *Psorphora* which bred therein was controlled with oil-soaked sawdust and oil from spray cans by hand labor.

The second type (swamps) were of interest only where they were close to the inhabited portions of the reservation. Throughout the summer the only mosquitoes produced from these areas were *Anopheles punctipennis* and various *Culex* and *Aedes*. The breeding of the second type was controlled by drainage, filling, and oiling. This feature of the campaign will not be discussed here, as it was carried on primarily as a measure of control of the pestiferous mosquito.

The third type, at the mouths of Chopawamsic and Quantico Creeks, are tidal areas, the tidal fluctuation being about 2½ feet. Both have comparatviely large areas of typical tidal marsh—i. e., grass-covered flats, bare at low tide and flooded at high—and many acres of open shallow water. The tidal channel meanders through the flats and cuts a deep waterway through the open reaches. There was no perceptible current except in this channel. In the summer of 1926 the shallower portions (from the bank out to a depth of 2 feet) were densely overgrown with large pond lilies (*Nymphaea odorata var. gigantea*, Hort.), arrow head lilies (*Sagittaria latifolia*), water chinquapin (*Nelumbo lutea*), and some pickerel weed (*Pontederia cordata*). Beyond this growth, up to the edge of the channel in 2 to 8 feet of water, grew eel grass (*Vallisneria spiralis*), among which was some *Myriophyllum heterophyllum* and *Elodea canadensis*, and patches of an unidentified closely growing water lily with a small spear-shaped leaf.[2]

The tidal marsh of Quantico Creek is unbroken except for the channel. The marsh of Chopawamsic is dotted with large and small

[2] This is probably *Sagittaria lorata*.

lakes and pools. The largest, known as Robinson's Pond, is very close to the flying field.

Toward the end of July some of the eel grass and spear-leaved lily died and rose to the surface, making a tangled mat of flotage in which grew much algæ. The mats were held stationary by the live eel grass until winds and very high tides dislodged them and carried them to the river. They were soon replaced with more dead eel grass so that flotage was practically always present in these bays until cold weather.

With the advent of eel grass flotage in Chopawamsic and Quantico Bays in late July, *Anopheles quadrimaculatus* appeared. Their larvae were taken wherever dead eel grass was found, both in the open and shaded areas, where it collected among the stems of the large-leaved upstanding lilies. Breeding, however, was heavier and more extensive in the open areas, where the water ranged from 3 to 8 feet in depth. Some larvae were found under the flotage. Most larvae were seen to be lying quietly between the leaves, but often large larvae (fourth stage) were observed perched on top of apparently dry leaves. This was observed most frequently on the hottest of bright midsummer days.

An interesting account of the anopheline breeding found in these bays has been given by Dr. H. R. Carter (1). Doctor Carter examined these areas when the camp was first built and stated that, in 1917, up to the end of July, no production of *Anopheles quadrimaculatus* had been found, except a very few in the pools at the mouth of Camp Creek. On September 3, a number of houses at Quantico were searched and a large number of *Anopheles quadrimaculatus* were found. Four hundred and forty-two specimens were taken in a small isolated group of tents one-third mile from the mouth of Chopawamsic Creek. All other possible breeding places were controlled up to a mile distant from quarters. In Chopawamsic and Quantico Creeks Doctor Carter found acres of wild celery (eel grass) in 2 to 6 feet of water, up to half a mile from shore. Its long blades floated just level with the surface of the water, rising and falling with the tide and pointing down the current. Among the flotage here was found heavy breeding of *Anopheles quadrimaculatus*. As Doctor Carter puts it: "In these creeks there was the heaviest breeding of Anopheles I have ever seen over a large area, and we estimated the average number of larvæ per dip at 8, but one dipper took 52. Also, the same conditions, breeding in deep water, had been noted on Broad River, S. C., and other places in our work on impounded waters, but none so spectacular as this. This problem of control of this breeding is a very difficult one " (1).

During the season of 1926 a careful search was made for adult *Anopheles quadrimaculatus* in or near the camp. The first of this

species were noted on the Chopawamsic Creek side on July 16 and 17, when nine and two, respectively, were taken. The first adults on the Quantico Creek side were taken on July 21, when seven were found.

The first quadrimaculatus larvæ were found in the flotage among the eel grass in Quantico Bay on July 29, when five larvæ were taken in 50 dips.[3]

Chopawamsic Creek was extensively examined on August 3, when two larvæ per 50 dips were found. From this point on, some adult *Anopheles quadrimaculatus* could always be found in favorable roosting places until late in October. Larvæ of *Anopheles quadrimaculatus* were found intermittently in both bays as late as September 29. Throughout the season the only larvæ found in these bays proved to be *Anopheles quadrimaculatus*, with the exception of 11 Culex. Five were unidentified, six being *Culex testaceus*. The larval infestation of these bays was almost exclusively of *Anopheles quadrimaculatus*.

Control Program for 1926

Former attempts at control from land and water having failed, it was determined to attack the problem from the air, by distributing Paris green from an airplane.

Dr. M. A. Barber and T. B. Hayne (4) in 1921, experimenting with Paris green as a larvicide, found it to be entirely effective against anophelines. The application of insecticidal dusts by airplane was first demonstrated by the Army Air Service, in cooperation with the Ohio State Experimental Station (5) in August, 1921. This was both experimental and practical work for the control of the catalpa sphinx. In 1922, the Department of Agriculture and the Army Air Service commenced their extensive experiments in the dusting of cotton from airplanes. Coad, Johnson, and McNeil (6) were in charge and developed a very successful method of dust distribution and demonstrated both the effectiveness of the airplane in distributing insecticidal dusts and the greater economy of this method as against applications from the ground.

Following these developments, Dr. W. V. King and G. H. Bradley (7), Bureau of Entomology, Department of Agriculture, in 1922, 1923, and 1924, carried on successful experiments with the distribution of Paris green from an airplane and demonstrated the effectiveness of such application in controlling production of *Anopheles*.

The commanding officer of the flying field at Quantico was very enthusiastic over the project of mosquito control by airplane, and tendered every possible assistance throughout the season.

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[3] In dipping, long-handled white enamel dippers were used, the bowl of which was 4 inches in diameter and held 400 c. c. In making the dips the surface was skimmed until the dipper was nearly full.

Doctor King visited us early in the year and gave freely of the knowledge and experience gained in his experimental work. He materially assisted in formulating our program. We were also fortunate in having a visit from Dr. M. A. Barber and Mr. J. A. Le Prince, both of the United States Public Health Service, to whom we are indebted for many valuable suggestions.

Lieut. F. G. Cowie, United States Marine Corps, engineer officer, of the flying field, was detailed to construct a hopper and equip the plane. He made a hopper of 20-gauge galvanized iron of the following dimensions: 3 feet high by 2 feet wide by 3 feet long, the lower 12 inches sloping to the center of the hopper at an angle of 30°. The hopper was installed forward of the cockpit in a TW-3 airplane. This type of plane has a low landing speed, is easily maneuvered, and, of the planes available, was considered the safest to use in low flights over marshes and wooded swamps.

The filler hole, 7½ inches inside diameter, was equipped with a self-locking top. The opening through which the mixture was discharged was 6½ inches inside diameter. This opening was fitted with a sliding door held shut by means of springs and actuated by a cable control that was carried back into the cockpit and terminated in a handle within easy reach of the operator. This handle was mounted on a racket quadrant to permit the degree of opening to be regulated.

An agitator was installed in the center of the hopper. This was equipped with a spiral vane 12 inches above its lower end. At the lower end of the shaft, fins were attached 90° apart. These fins made a wipe fit with the inside of the outlet.

A venturi tube was installed under the fuselage of the plane. Its dimensions were 4 feet 4 inches long by 12 inches high at the mouth—3¾ inches high at narrowest point—by 25 inches wide. The outlet of the hopper opened into the constriction of he venturi tube, the point of greatest air velocity, from which the dust was blown out in an even cloud. Such a tube traveling through the air at a high rate of speed creates a small volume of high velocity at its narrow portion and a partial vacuum at its outlet. The dust under abnormal air movement is well broken up as it enters the partial vacuum.

The average load carried on the dusting flights was about 200 pounds. The average flying speed was 65 miles per hour. The plane with this load answered to the controls nicely.

The first flights were experimental and were conducted over upper Chopawamsic Swamp, which is almost impenetrable by land. Portions of this swamp are heavily wooded, with tangled underbrush of vines and briars; other areas are a mass of matted grass and briars interspersed with dense thickets. It required two hours to walk 1 mile through this swamp.

It was necessary to cut three paths from north to south, a half mile apart, in order to set out our pans of larvae and slides for testing larval mortality and the distribution of Paris green.

Path No. 1 crossed the upper and wider part of the swamp; No. 2 crossed the center; No. 3 crossed the narrow lower end. Numbered stakes were driven in the paths 25 feet apart and a pan was set near each stake, care being taken to place the pans out of the path and among each type of vegetation in the swamp. Each pan was half filled with water from the swamp and baited with a varying number of *Anopheles* and *Culex* larvae.

At intervals of 2 to 24 hours after each flight the larval mortality was noted.

A 2-inch by 4-inch glass slide was set beside each pan. Subsequently to each flight these slides were collected and examined under a microscope to determine the number of particles of Paris green per square inch. No adhesive material was necessary.

Observation of larval mortality by dipping natural breeding areas in this section was impossible; the undergrowth was too tangled to allow ready access; therefore the lethal effect of the dust was measured by the death of larvae placed in the pans set near the paths across the swamp.

Although Dr. W. V. King had reported on a large number of tests flights made by him for the purpose of determining the necessary amount of Paris green, the effect of wind, and the width of the path covered by Paris green at each trip of the plane, it was thought necessary to check these findings with our equipment and under local conditions.

Experimental Flights

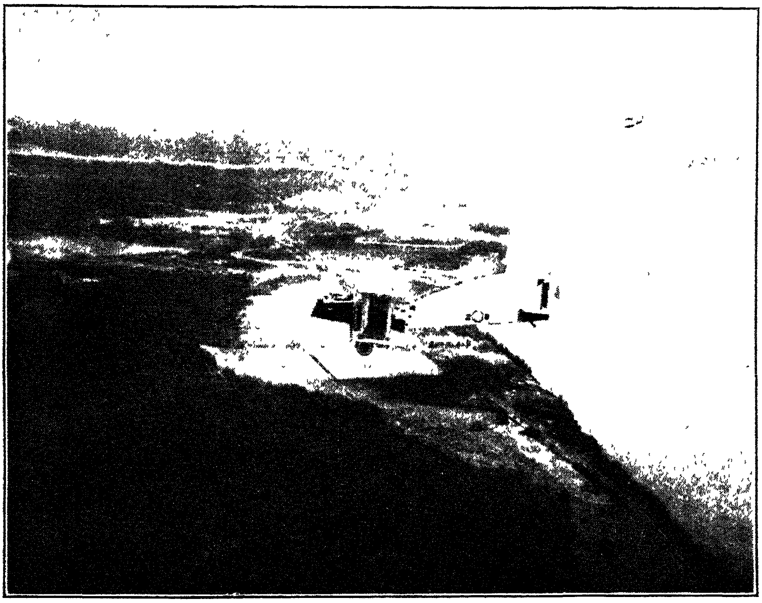
First experiment—June 21, path No. 3

Number of pans: 24.
Larvae per pan: 10 *A. punctipennis* and 10 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: S. S. E., 11 miles per hour.
Weather: Bright and clear.
Dust mixture: 10 per cent by weight of Paris green with powdered soapstone.

Flight.—The plane crossed the line at right angles, making but one trip.

Results.—Paris green was found fairly evenly distributed from pans 7 to 24, the concentration varying from 5 to 20 particles per square inch. Three hours after dusting, most of the larvæ were alive. At the end of seven hours a few pans showed a 25 per cent mortality.

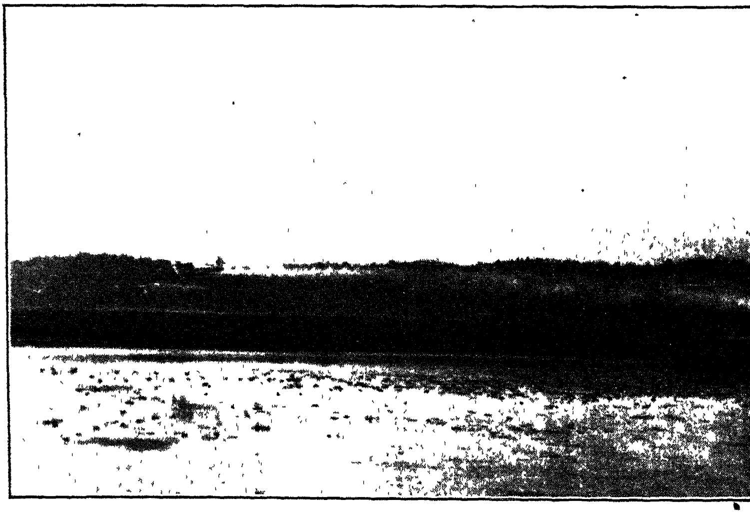
Conclusions.—1. The path of Paris green made by one trip of the plane was approximately 200 yards wide.



Aerial view of Quantico. Flying field in the foreground; Marine Barracks between the two creeks

Dense eel grass mats in Quantico Bay

Dusting plane



Plane releasing dust cloud over swamp

2. Ten per cent Paris green was too great a dilution to use from this plane at a flying altitude of 100 feet and in a wind of 11 miles per hour.

Second experiment—June 2[illegible], path No. 3

Number of pans: 24.
Larvæ per each pan: 10 *A. punctipennis*, 10 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: 7 miles per hour.
Weather: Cloudy—light rain immediately before flight.
Area dusted: 50 acres.
Dust: 50 pounds Paris green with 150 pounds powdered soapstone.
Flight: Aviator attempted to make each trip 200 yards apart, releasing dust just before entering the area and closing valve after passing.

Results.—The distribution was excellent, 11 slides receiving 25 particles of Paris green per square inch, the others varying from 50 to 150. The mortality among the *Anopheles* 17 hours after dusting was very high. The lowest anopheline mortality in the pans was 70 per cent; the next was 80 per cent; 4 showed 90 per cent; and the remainder (16 pans), showed 100 per cent.

Culicine mortality, although variable, was also very high. One pan showed over 50 per cent mortality; one, 60 per cent: two, 70 per cent; three, 90 per cent; and the remainder (13), 100 per cent. (Two pans were spilled.)

This experiment was controlled without the use of Paris green. Nine pans were put in the same location on June 25 and examined at the end of 24 and 42 hours. The mortality was fairly high at the end of 24 hours. One pan showed no larval mortality; two showed 20 per cent; two, 40 per cent; one, 60 per cent; two, 75 per cent; and one, 100 per cent. These figures are for anophelines. The Culex showed approximately the same degree of mortality. At the end of 42 hours the anopheline mortality was much higher: Two showed 20 per cent; one, 40 per cent; three, 75 per cent; and three, 100 per cent. The mortality was practically the same among the Culex.

From this it was apparent that considerable larval death could be expected within the pans after long exposure. The dusted pans, however, yielded a very much higher mortality after 17 hours' exposure to Paris green than did the controls after 42 hours of sun.

Conclusions.—(1) Twenty-five particles of Paris green to the square inch were sufficient to insure death of nearly all *Anopheles* larvæ present.

(2) The required concentration was obtained by using 1 pound of Paris green with 3 pounds of soapstone per acre.

(3) Height of 100 feet satisfactory in 7-mile breeze.

(4) Wet vegetation was not a bar to dusting.

Having established an effective lethal concentration under existing conditions, the next experiment was designed as an attempt to establish a minimal lethal concentration.

Third experiment—July 1, paths Nos. 1, 2, and 3

Number of pans:
- Path No. 1: 42.
- Path No. 2: 23.
- Path No. 3: 24.

Larvæ per pan: 5 *A. punctipennis*, 5 *Culex* (species undetermined).
Height of flight: 100 feet.
Wind: 6 miles per hour.
Weather: Sunny.
Area dusted: 156 acres.
Dust: 78 pounds Paris green with 478 pounds soapstone.
Flight: Aviator was instructed to put the total quantity of dust over the swamp as evenly as possible.

Results.—The dusting flight consumed just 28 minutes, including the necessary time [1] to return to the field for refilling the hopper. A fairly even and effective distribution was observed over the narrow end (No. 3) line. One end of this pan line was missed altogether, as was a small path near the middle. Where the dust was observed, the concentration was found to vary from 8 to 25 particles per square inch, only one slide showing as high as 50 particles. Where the dust fell it killed. The distribution at the middle pan line (No. 2) was very poor. The dust was found only in small quantities and apparently covered only one path approximately 100 yards wide in the center of the line. The remainder of the path was missed altogether.

In line No. 1 both ends were missed and a slightly irregular distribution of dust was seen over the middle half of the line. One slide showed 25 particles, one 20, one 12, and the remainder below 10. The mortality was very low for the most part, only six pans showing 100 per cent.

In this dusting, 16 paths were made by the plane over the swamp. All 16 went over pan line No. 3 at the lower narrow end, an excessive dusting, whereas pan lines Nos. 1 and 2 (the widest portions of the swamp) were crossed but a few times, variously estimated by the observers on duty at two or four trips.

It seemed to us that the quantity (one-half pound per acre) gave an insufficient margin of safety, and that the dilution (14 per cent Paris green) was perhaps too great.

This flight was controlled on July 2, when 10 pans were placed in path No. 1. After four hours of exposure all larvae were living, except in 3 pans, one larva being dead in each of the three. These were checked again at the end of 24 hours, and one pan showed all alive; two showed 20 per cent dead; five, 40 per cent; one, 60 per cent; and one, 80 per cent. Culex were practically the same. In other words, a moderate degree of mortality in the control at the

[1] Generally about 20 minutes were required in landing the plane, filling hopper, and returning to the swamp.

end of 24 hours, contrasted with a very high degree of mortality four hours after the dusting flight of the previous day.

Fourth experiment—July 16, paths Nos. 1 and 3

Number of pans:
 Path 1: 29 pans.
 Path 3: 24 pans.
Larvae per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 50 to 200 feet.
Wind: 8 miles per hour. Air bumpy.
Weather: Sunny; temperature 66° F.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 156 pounds soapstone.
Flight: Time, 1 hour, including 2 trips to reload; 9 full paths up and down swamp; 7 paths half way.

The distribution of Paris green was much better than in the previous experiments. In No. 1 line 12 of the pans were missed altogether; the remainder showed 8 to 25 particles of Paris green per square inch. The mortality followed the distribution of Paris green very closely. In line No. 3 only one pan was missed. The others varied from 8 to 25 particles of Paris green per square inch, except on 3 slides, which received 125 each. Mortality was high, though not 100 per cent, in this pan line.

Following the flight of July 16, controls were put out on July 17 and left until July 18. Four and a half hours after being so placed all larvae were living in all pans except two, one of which had 20 per cent mortality and the other 80 per cent. Twenty-one and a half hours afterwards all larvae were living in six pans; one showed 20 per cent mortality; two, 25 per cent; and one, 80 per cent. The pans showing 20 per cent and 80 per cent were the same in both checks. This control was in pan line No. 1. At the same time a control was similarly placed in line No. 3. Here the mortality was higher than in line No. 1. At the end of 9 hours all were living in three pans; two showed 25 per cent mortality; one, 40 per cent; one, 50 per cent; two, 80 per cent; and one, 100 per cent. At the end of 24 hours in no pans were all alive; one showed 50 per cent mortality; one, 75 per cent; four, 80 per cent; and two, 100 per cent. Most of the dusted pans in the same line showed 100 per cent mortality at the end of 6½ hours.

Conclusions.—(1) Bumpy air, requiring higher flights, is no bar to dusting when a concentrated mixture is used.

(2) Fifty per cent dilutions give good distribution of Paris green.

Fifth experiment—July 19, path No. 3

Number of pans: 24.
Larvae per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 25 to 100 feet.
Wind: 6 miles per hour.

Weather: Sunny.[1]
Area dusted: 156 acres.
Dust: 78 pounds Paris green with 234 pounds hydrated lime.

The distribution of Paris green was excellent, only one pan being missed. All other pans received at least 12 particles per square inch—four of them 50, four 150, and two 250. Mortality was high throughout, excepting only the pan that was missed. In four and one-half hours all anophelines were dead in all but six pans. In the five which received Paris green the mortality varied from 50 per cent to 80 per cent.

Sixth experiment—July 27, paths Nos. 1 and 3

Number of pans:
- Path No. 1: 26.
- Path No. 3: 24.

Larvæ per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 100 feet.
Wind: 4 miles per hour.
Weather: Bright.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 468 pounds hydrated lime.
Flight: Path No. 1 was crossed 14 times; path No. 3 was crossed 18 times.

The concentration of dust over the lower line was very heavy. The lowest slide received 38 particles per square inch; four received 75 particles per square inch; and the remainder received from 125 to 250 particles per square inch. Examination 6¼ hours after the commencement of dusting showed 100 per cent mortality in each of the 24 pans. The distribution, although good, was less in the upper pan line. Four slides received 8 particles per square inch, 12 received 20 to 25 particles per square inch, and the remainder from 50 to 250 particles per square inch. Five hours after commencement of dusting 16 of the pans showed 100 per cent mortality of anophelines, 5 showed 80 per cent, 3 showed 70 per cent, and 2 showed 50 per cent.

Conclusions.—These last two experiments were for the purpose of testing hydrated lime as a diluting powder. It gave as good a cloud as soapstone and produced an excellent distribution of Paris green. Hydrated lime is but slightly irritating to the eyes of those handling it, and its white color is an advantage in revealing an uneven mixture with Paris green.

Seventh experiment—August 10, paths Nos. 1 and 3

Number of pans:
- Path No. 1: 26.
- Path No. 3: 24.

Larvæ per pan: 5 *A. punctipennis*, 5 *Culex*.
Height of flight: 25 feet to 200 feet.
Wind: 6 miles per hour.

Weather: Sunny.
Area dusted: 156 acres.
Dust: 156 pounds Paris green with 468 pounds soapstone.
Flight: 1 hour, 15 minutes, including two trips for reloading.

The plane made 21 paths over the lower, and 23 over the upper pan lines. The distribution of Paris green was excellent. One slide in the upper line showed 15 particles of Paris green per square inch. All the other slides in both lines showed at least 25 particles of Paris green per square inch, the number varying upward to 250.

Mortality in path No. 3, five hours after dusting, was 100 per cent in every pan except one, which had only 70 per cent. Mortality was more variable in path No. 1, being 60 per cent in 2, 80 per cent in 4, and 100 per cent in 16 pans.

Control pans were set out the next day, 9 pans being placed in path No. 1 and 10 pans in path No. 3. Dead larvæ were not observed in these until after 19 hours' exposure. In path No. 1 two pans showed mortality of 20 per cent; the others, 0 per cent. In path No. 3 four showed 20 per cent; the others, 0 per cent. This emphasizes the very high mortality seen after only five hours' exposure to Paris green.

Conclusions.—(1) One pound Paris green per acre is a sufficient amount.

(2) In wind velocities of not over 6 miles per hour, a 25 per cent concentration is preferable.

The following table includes data from the experimental flights as well as data from pan lines on the bridges during the flights for control as described hereafter:

Per cent of larvae dead in each pan	Number of pans receiving Paris green		
	25 or more particles of Paris green per square inch	10 to 24 particles of Paris green per square inch	9 or less particles of Paris green per square inch
100	58	5	2
95-99	73	0	0
90-94	36	6	9
80-89	41	12	5
60-79	1	12	13
50-59	0	0	
Total	209	35	44

This shows that among the pans receiving 25 or more particles of Paris green per square inch, the larval mortality was over 90 per cent in the vast majority of cases; and among the pans receiving less than 25 particles of Paris green per square inch, the vast majority showed a larval mortality of less than 90 per cent, half being less than 80 per cent.

It will be noted that *Culex* has been ignored in this discussion. Mortality among *Culex* in the first three experiments was high. Subsequently Paris green had little or no effect on that genus. The culicines used in the later experiments were identified. Paris green in our pans had no effect on *Culex pippiens*, *Psorophora columbiae*, or *Aedes vexans*.

Flights for Control of Anopheles Breeding

For the purpose of checking the degree of anopheline control obtained in Quantico, it was necessary to keep under observation some point well beyond flight range, where breeding conditions were similar. For this purpose the region around Aquia Creek, 8 miles south of the reservation, was chosen. The upper reaches of this creek are almost identical with those of the Chopawamsic—comprising a free-flowing stream spreading out into a swampy area and then into a tidal marsh about 2 miles long. Its mouth is almost an exact replica of the entrance of Quantico Creek into the Potomac, in that it widens out into a relatively large tidal bay with much lotus (*Nelumbo lutea*) and eel grass (*Vallisneria spiralis*). About August 1, catches of *Anopheles quadrimaculatus* adults were made at various points about the lower part of this creek. About the middle of August all other places were discontinued and observations were made at a single point opposite the junction of the open bay and tidal marsh. Here was a farmhouse overlooking the water where were found ideal conditions for collecting roosting anophelines. The infestation of *Anopheles quadrimaculatus* was so great that the labor involved in collecting or even counting all the roosting mosquitoes precluded the use of all the excellent roosting places about this farmyard. Therefore between July 31 and October 26, 24 catches were made of all roosting *quadrimaculatus* that were in a double toilet, a hen house, and one-fourth of the underside of the porch around the house.

Active breeding of *Anopheles quadrimaculatus* in the eel-grass mats was noted for the first time in Quantico Bay on July 29. On July 30, larvae were sufficiently prevalent to yield 5 in 50 dips. So on August 5 the first dusting for practical control was made over Quantico Bay. It is not necessary to describe each dusting flight separately as all were similar in detail. In every flight over the bays, the flying altitude varied between 25 and 100 feet, and the dusting mixture used was equal parts (by weight) of Paris green and powdered soapstone.

In each flight the area dusted in Quantico Bay was 300 acres; in Chopawamsic, 500 acres.

Dustings were made under a variety of meteorological conditions—on hot, sunshiny days, just before and after rains, in winds varying

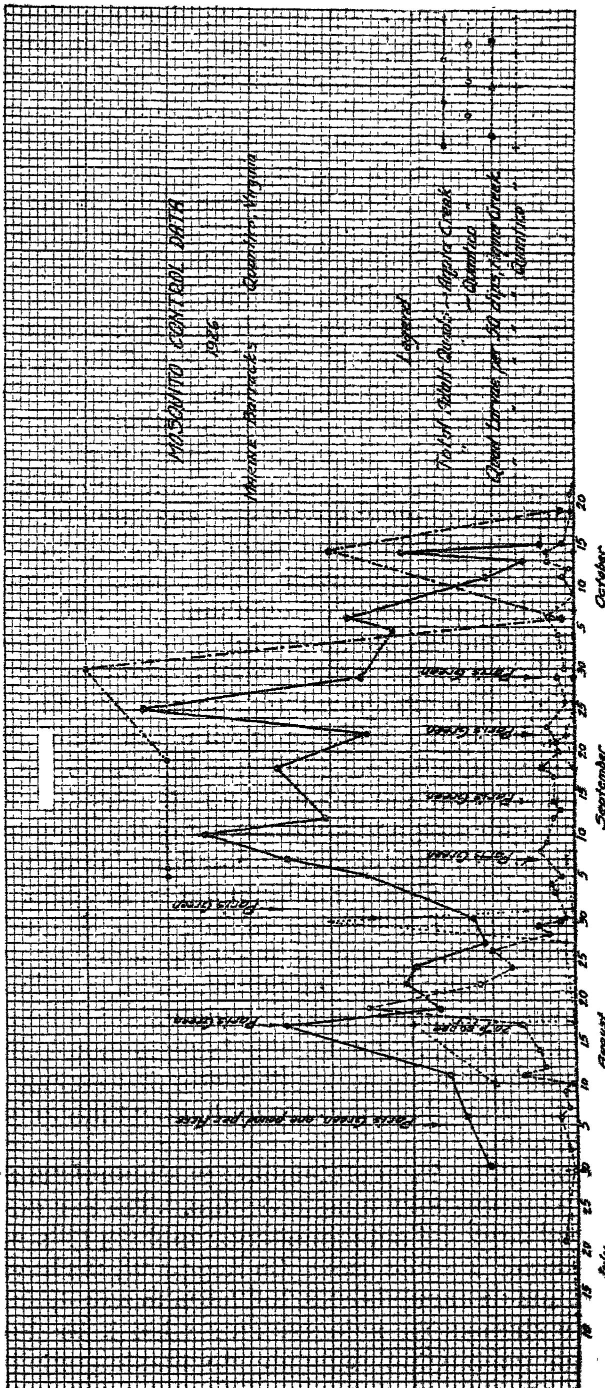


CHART 1.—Comparisons between anopheline prevalence at Aquia and Quantico Creeks

from barely perceptible air currents to velocities of over 5 miles per hour. Over open water, and at flying altitudes of not less than 100 feet, the dust path could be followed easily as it drifted from one-quarter to one-half mile. Under such conditions 50 per cent mixtures of Paris green could be distributed more easily than 10 per cent mixtures, and required much less flying.

The aviator flew "across" the wind, commencing on the windward side of the bay. He observed the drift of the dust cloud, thus determining the path of the return trip. The wind eddies that occur over open waters are constantly changing. These eddies have been seen to shift the dust cloud from north to south, and then suddenly back to north, within a few seconds. The shifting of the dust must be carefully observed by the pilot and taken into consideration in his subsequent trips over the area. This emphasizes the fact that the even distribution of the dust is in the hands of the pilot. We have noted that the pilots who have made a reconnaissance flight over the area before dusting have secured the most even distribution.

The first and second flights were August 5 and 6, over Quantico and Chopawamsic Bays, respectively. The floatage was not dipped at these times; but, as no adult mosquitoes appeared, it was presumed that the poison had been effective.

On August 10, larvæ again appeared in Quantico Creek at the rate of 50 per 50 dips. The larvæ were small and hence dusting was postponed. On August 17, the count had risen to 100 per 50 dips, with one pupa to every four larvæ. (This will be discussed in the consideration of adult Anopheles in the camp.) On this date the plane dusted the area with complete success so far as the larvæ were concerned, but the pupæ remained alive. Search made two hours after dusting yielded a total of nine dead larvæ and no live ones.

Breeding recommenced in the bay on August 27, being 5 per 50 dips. By August 30, the number of larvæ had increased to 150 per 50 dips, and the creek was dusted on the following day. Three hours after dusting, extensive search for two hours yielded a total of but two live larvæ. During September this bay was dusted at weekly intervals, although larvæ appeared only twice, once on September 7 and again on the 21st. Dusting at these times quickly brought the larval count to zero.

In Chopawamsic Bay, larvæ of *Anopheles quadrimaculatus* appeared on August 3, when two were taken in 50 dips. The bay was dusted on August 5 and larvæ did not appear again until the 13th, when the count again showed 2 per 50 dips. On August 27, the larval count was the same, and on September 3 it had fallen to zero—this without dusting. This phenomenon is inexplicable unless it be that heavy rains and high winds affect adversely the breeding conditions of Chopawamsic, even though such was not the case at Quantico Bay.

Chopawamsic was dusted on September 10 as a precautionary measure and on the 13th the count showed but two larvæ per 50 dips. On September 23 the number of Anopheles larvæ in this area rose to 100 per 50 dips, but an application of Paris green immediately reduced this to zero. Again on September 29, the count rose to 100 per 50 dips, only to subside to zero a few hours after the plane applied the dust. Never again during the season were larvæ found in this bay.

The waters of Chopawamsic and Quantico Bays were tested for salinity. At high tide we found chlorine to be 60 parts per million.

As a further check on the distribution of Paris green, pan lines were placed on the bridges over Chopawamsic and Quantico creeks for five of the flights. These showed an excellent distribution of Paris green and a high mortality of larvæ within the pans. They also revealed on two occasions that the edge of the bay had been missed by the dust.

The effectiveness of any mosquito-control method is best measured, not by larval counts, but by adult infestation. This was checked on both sides of the camp as near the two major breeding areas as possible. On the Chopawamsic side we chose two henhouses and a toilet, and on the Quantico side, one large henhouse (the only good place). Regular catches were made at these places and all adult mosquitoes caught were counted and identified. Adult *Anopheles qvadrimaculatus* could nearly always be taken in small numbers near these two creeks. The number generally averaged less than 25 from the middle of June to the middle of October. This is a very small number when one considers the large size of the breeding area and realizes that the roosting places were most favorable for Anopheles and were the only good roosting places near the breeding area. It seems probable that on both sides of the camp there are either undiscovered small breeding areas or else, what is more likely, some breeding areas in the creeks from time to time missed being dusted by Paris green. It is also possible that exceptional larvae do not ingest the dust. Indeed this is the only reasonable explanation of the pan-line observations, where four of the five larvæ in each pan often died within three or four hours but the fifth lived 24 to 40 hours.

It is interesting to note that on both the Chopawamsic and Quantico sides of the camp, a few adult *quadrimaculatus* were taken from July 16 to 30, a period during which no *quadrimaculatus* larvæ could be found. With the advent of larvæ in the bays these adults disappeared. It may be possible that these adults were winter-hibernators from the previous season. As was to be expected, they disappeared before active breeding was discovered, for, as Herms (8)

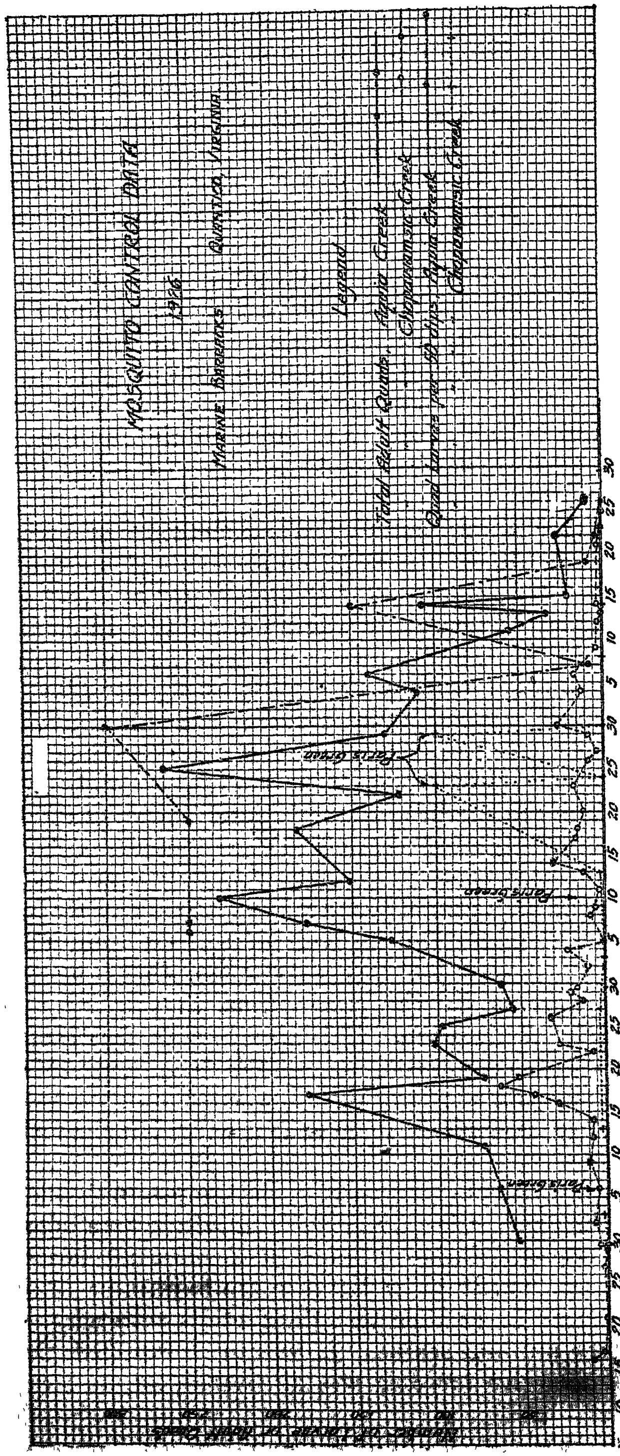


CHART 2.—Comparisons between anopheline prevalence at Aquia and Chopawampsic Creeks

points out, the hibernating fecund adult mosquito dies within a short period after laying her batch of eggs.

Whenever mosquito infestation was reported from quarters, search was made, and in three or four instances one or two *quadrimaculatus* were found. It is of interest to note that the two druggists of the town of Quantico volunteered the information that, whereas in previous years, including 1925, they sold an average of four gallons of citronella and quantities of other mosquito repellents; during the past season they had sold only one gallon.

In the body of the camp, *quadrimaculatus* were practically absent except during the one and only break in technique which occurred during the week of August 10. The first ground-soaking rain of the season fell on August 10, filling all depressions and creating temporary pools. As the *quadrimaculatus* larvæ (50 per 50 dips) in Quantico Bay were first-stage larvæ, it was deemed safe to delay dusting while all efforts were concentrated on the oiling of myriads of temporary pools, which, from their excessive larval content, bade fair to inundate the camp with an enormous influx of *Culex*, *Aëdes*, and *Psorophora*. The creek should have been dusted on the 10th; but when the plane was ordered out on the 15th, some mechanical trouble developed and the flight was delayed until the 17th. On that date larvæ were found in the bay at the rate of 100 per 50 dips. Had all of these been still in the larval stage, the dusting would have been in time. Unfortunately, 20 per cent had pupated. Pupa do not feed and therefore are unaffected by Paris green. The plane dusted the area with complete success as far as larvæ were concerned, but the pupa remained alive. Search made two hours after dusting yielded several dead larvae, no live ones, but a number of pupæ. Apparently these pupa hatched within the next two days, for the adult catch rose suddenly on the 19th to 127.

Over a 10-day period thereafter we had a mild infestation of *Anopheles quadrimaculatus* within the camp. At the end of this time practically all had left the camp proper and the catches at the creek edges had fallen to normal.

Two things of interest were noted during this period: First, this brief infestation was followed by a very great amount of justifiable protest on the part of the personnel of the camp. The annoyance and personal discomfort occasioned by these *quadrimaculatus* was as great as though a sudden cloud of pestiferous mosquitoes had appeared. The second point was that the adult infestation from this crop lasted exactly 10 days. This might lead one to believe that the average life of a single "crop" of Anopheles is not over two weeks. Similar observations have been made by one of the authors,[5] who reported

[5] Unpublished report of L. L. Williams, jr., on the effect of draining the fish pond at Toano, Va., in the summer of 1923.

such a disappearance of adult *Anopheles* two weeks after the cutting of a dam which removed the only breeding area from a certain section in James City County, Va., and who also reported (9) that an infestation of adult *Anopheles quadrimaculatus* about the upper part of Lake Prince, Nansemond County, Va., disappeared in 11 days after the breeding had been suddenly controlled. Of course, these observations do not mean that the natural life of Anopheles in nature is under two weeks. With only one crop of adults their natural enemies will decimate the brood more rapidly than when their falling ranks are constantly replenished by new emergencies. Also, considering the known extrinsic incubation of malaria, the life of a number of individuals must be over two weeks. However, it does indicate that if control operations be started after the first flight of Anopheles, persistence of numbers of adults indicates that some breeding has been missed. For, if all Anopheles breeding be controlled, then adults should disappear within two weeks. It has been the belief of malaria workers in general that Anopheles are not considered in the light of a pest. During the infestation here recorded, they were a pest and were so described frequently. This occurrence indicates that at times *Anopheles quadrimaculatus* may be as great an annoyance as the so-called pestiferous mosquitoes.

Perusal of the records of Aquia Creek, which we chose as our outside mosquito check, gives some idea of what might have occurred at Quantico if no control measures had been applied to Quantico and Chopawamsic Bays. At Aquia during August an average day's catch was about 100, varying from 50 to 175. These were the roosting *Anopheles quadrimaculatus* taken from the double toilet, henhouse, and one-fourth of the underside of the porch, probably 20 per cent of the total roosting *quadrimaculatus* about the farmhouse. In September, the average rose to about 150, fluctuating between 100 and 250. In other words, there was a rather heavy infestation during August, with the peak (177) on August 17, and a very heavy infestation throughout September, with peaks (277) on September 10, and (266) on September 25. In October the number fell rapidly until the end of the month, which saw practically a disappearance of adult *quadrimaculatus*. It was to be expected that a heavy infestation of this description would be accompanied by excessive breeding in the creek (the only possible breeding place within flight range of the farm house where the catches were made); and such was found to be the case. Between September 6 and October 25, nine expeditions were made by boat in lower Aquia Creek, where a search was made for *Anopheles* larvæ. They were easily found in the large floating mats of dead and dying eel grass (*Vallisneria spiralis*) and among the mats formed by floating spear-leaved lilies.[6]

[6] Spear-leaved lily is probably *Sagittaria lorata*.

The number of larvæ was so great that on one occasion after pushing the boat through a mass of eel grass and into the open water, among the lotus (*Nelumbo lutea* and *Sagittaria latifolia*) there were observed seven or eight *quadrimaculatus* larvæ swimming freely on the surface, at least 15 feet from the nearest patch of flotage. The larvæ were found clinging to the stalks of the upstanding lotus. A mat of flotage near by yielded larvae at the rate of 1,250 per 50 dips. Dr. H. R. Carter (10) reported finding *Anopheles* larvae breeding profusely in the lotus beds at Quantico in the summer of 1917. Doubtless this occurs only where breeding is enormous in amount.

It was noticed that among such heavy breeding, few culicines were taken. Throughout the entire season only 14 Culex larvæ were taken in Aquia Creek, Chopawamsic Bay, and Quantico Bay. They all appeared to be the same species, but six only were identified, being *Culex testaceous.*

In dipping Aquia Creek each type of flotage was sampled, the dips were counted, and the number of larvae in each 50 dips was recorded. From September 6 to October 1, larvæ of *Anopheles quadrimaculatus* here averaged from 250 to 300 in 50 dips. Cold weather at the end of this month reduced the number of larvæ as well as adults, the larvæ becoming very scarce. A week of warm weather in early October brought a new crop of larvæ and a brief return of adults, but both rapidly disappeared with a subsequent fall in temperature. The above is a picture of free breeding and heavy adult infestation with *Anopheles quadrimaculatus.* From Doctor Carter's report in 1917, and some observations of officers more recently, it is certain that the camp at Quantico would have shown as great an infestation had no control measures been instituted.

Cost of Materials Used in Chopawamsic and Quantico Bays

Paris green, 3,300 pounds	$556. 05
Soapstone, 4,700 pounds	23. 50
Total	579. 55
Number of acres dusted	800
Average number of dustings for each acre	5. 1
Cost per acre for season	0. 724

Summary and Conclusions

1. From 1917 through 1925, at Quantico, control of mosquito breeding was attempted through the use of drainage and oil within the post only.

2. These measures reduced the mosquito infestation appreciably but did not eliminate malaria convection on the post.

3. During these years the mosquito pest was excessive from the middle of summer until fall.

4. The late summer mosquito infestation was largely *Anopheles quadrimaculatus*, which came from the large breeding areas of the bays at the mouths of Quantico and Chopawamsic Creeks.

5. This mosquito production occurred among the flotage composed of heavy mats of dead and dying eel grass (*Vallisneria spiralis*) and spear-leaved water lilies.

6. In 1926 this mosquito production was controlled by Paris green applied from an airplane.

7. Dusting was effective against *Anopheles* in all types of vegetation, from open marsh to densely wooded swamp. It did not affect other mosquito genera.

8. The effective quantity of Paris green was found to be one pound per acre.

9. Hydrated lime and powdered soapstone were used as diluents and each was found to be satisfactory.

10. With wind velocities of less than 4 miles per hour and flying heights 100 feet or less, a 25 per cent Paris green mixture was effective.

11. In winds of greater velocity and with flying heights of over 100 feet a dilution of 50 per cent was effective.

12. The slides effectively revealed the distribution and concentration of Paris green. The pans of larvæ, although useful, did not give conclusive evidence of the mortality rate.

13. Larvae dipping in natural breeding areas is the most valuable method of determining the minimum lethal dose.

14. When breeding was continuous and heavy it was necessary to dust at weekly intervals.

15. The cost of material was $0.724 per acre.

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PREPARATION AND USE OF INVESTIGATION FORMS

By V. L. Ellicott, M. D., Dr. P. H., *Epidemiologist, Baltimore City Health Department*, and Ellen Murphy Englert, R N., *formerly Supervising Nurse, New York State Department of Health*

The question of how to draft and use investigation forms is one that, in the opinion of the authors, has received far too little attention, in spite of the fact that the form is one of the most essential parts of any investigation. A glance at some forms now in use will reveal such defects as (1) items with meaning not clear, (2) items after which insufficient writing space is provided, and (3) items arranged in an order inconvenient to the field worker. Defects such as these obviously make additional work for field workers and clerks and greatly detract from the accuracy and completeness of the results of the study.

DRAWING UP FORMS

While it is impossible to lay down rules applicable to the drafting of all types of forms, the following will be found helpful in most cases:

1. Before spending time preparing a new form, estimate the additional departmental work required in connection with a new form and consider whether the form is really worth while. New forms mean additional printing, field work, tabulating, and filing. The advàntages of the new form must outweigh the disadvantages of this new work.

2. Go over your subject matter carefully and list all the information you wish to have included. To make this list complete, look over other similar forms to see whether they contain items which your new form should have. Then look over the following list of items which most forms require:

Name.	Color.	Illness.
Street.	Nationality.	Date of onset.
Ward or county.	Marital conditions.	Date of death.
Age.	Occupation.	Physician.
Sex.	School.	Investigator.

3. State the items clearly and definitely. Put yourself in the position of the field worker and consider how the expressions you are using on your form will be interpreted by the field worker. When desirable, suggest words to be used in the blank spaces. Do this by printing these words in parenthesis under the dotted lines. For example:

Type of onset --
(Sudden, febrile, etc.)

4. Arrange your items in the order most convenient to the field worker—that is, begin with an item familiar to the person interviewed, and group together those items which are related in thought.

Do not consider tabulation when you are at the stage of arranging items.

5. Be sure not to include too many items, particularly if the class of persons interviewed is busy or if the investigation is made by workers not under your own supervision.

6. Let the forms show, preferably by a dotted line, each space that requires a record. If these spaces are conspicuous, the investigator or checker can tell at a glance whether any items have been overlooked.

7. Adopt a standard system of type arrangement so that each kind of type calls for a definite kind of record. The following is suggested:

(*a*) Place a dotted line wherever the investigator is to write out a record. Place the dots directly adjacent to the words to which they apply but separate them from any words to which they do not apply. Example:

Age at death .... months .... weeks.

(*b*) Place a dot and a dash where an item is to be recorded only when the previous item calls for a record.

Example: Died at *home* or . — . — . — . Thus, if the patient died at home, the word *home* is underlined and no record is called for after "or . — . — . —"; but if the patient did not die at home, the word *home* is checked as negative and the space after "or . — . — . — ." calls for a record for the place of death on the dot-dash line.

(*c*) Italicize words which the field worker is to underscore or check to make his record.

The italicized words are to be underscored by the investigator to denote a positive condition, and are to be marked with a short, straight, slanting line to denote a negative condition. Thus, *dirty* means that the home was dirty, while *dirty'* means that it was not dirty. This underscoring system has two decided advantages over the yes-no system (putting Y/N after words and having the investigator check the proper letter); namely, (1) the marking of the word itself is easier and less likely to be erroneous than the marking of the Y or N after it; (2) the underscored words, if care has been taken to have them represent unusual conditions, tell the reader at a glance where the variations from normal are. For the last reason, the underscoring system is particularly valuable in blanks used for inspection purposes.

8. Unless punch cards are to be used for tabulation, set aside a square or other area for coding purposes. See section below under heading "Forms especially designed for tabulation."

9. Always put a title on the form and a place for serial or index number; also a printer's or mimeographing number used in ordering more forms.

10. Before ordering printed forms try out a number of mimeographed or typewritten forms until you are sure of the items, spacing and arrangement.

INSTRUCTIONS TO FIELD WORKERS

No forms can be drafted so perfectly as to be foolproof against untrained or careless field workers. Every new form should be put into use only after giving specific instructions to field workers. The following suggestions are offered concerning this:

1. Verbal instructions should be used only to supplement written instructions. They should not be depended on alone.
2. When the field workers are not under the direct supervision of the director (investigations by police, for instance), the instructions should be attached to the forms, being printed either on the backs or on the cover sheet of each pad. Simplicity and clearness are doubly important in these directions.
3. If your investigation is to be accurate in all its details, have your directions cover practically every item, even if this makes them lengthy.
4. Instruct the workers to fill in the forms *during* their investigations, not to jot down notes on scraps of paper and fill in the blanks later on. If this is objectionable because of the difficulty of making neat records in the field, give your field workers "dummy" records to fill in in the field and copy in the office. The dummies, however, should be exact duplicates and should be kept temporarily for reference.
5. Instruct workers to fill out all items on the form, leaving no blank spaces. (Few investigators realize how meaningless a blank space is.)
6. Instruct workers to record doubtful data as accurately as possible, using such expressions as "mother thinks about one month," rather than "?", "unknown," etc.
7. Before accepting a record, insist on its being neat, on every item being filled in, and on only the regular symbols being used. Care at this point will make, or lack of care will fail to make, a high standard of accuracy.
8. Do a little test tabulation early in the investigation to see whether the material tabulates satisfactorily.

SORTING VERSUS ITEMIZING

Large-scale investigations require punch cards for tabulation. Small-scale investigations, those having but a few hundred forms, for instance, should be hand tabulated to avoid unnecessary delay.

The usual method of hand tabulation, however, is not satisfactory. This consists of turning over sheets one at a time and counting the number of times that certain particular items occur, and is usually unsatisfactory because it shows only the *total* number of occurrences of each item, not the occurrence of one item in a selected group of

cases.[1] For instance, if about 400 forms of physical examinations of school children are being tabulated, it would be desirable to know not only the total incidence of malnutrition and of enlarged tonsils, but also the incidence of malnutrition *among* children with enlarged tonsils. If these forms were tabulated in the ordinary way, the results would show, say, 20 cases of enlarged tonsils and 48 cases of malnutrition, but they would not show how many of the children with enlarged tonsils were malnourished.

The logical means of overcoming this difficulty is to make hand tabulation by sorting the forms into piles instead of jotting down items from them. To do this, each report sheet is placed on one of a series of piles according to the record found under the item chosen for tabulation. After this is done, one of the piles is simply sorted for records under a second item. In the above example, the reports would first be sorted under the item "tonsils." One of the piles would be composed entirely of enlarged-tonsils records and would have 20 sheets. This pile would then be re-sorted for the item "nutrition," and one of these piles would be composed entirely of malnutrition sheets The number of sheets in this pile would represent the number of malnutrition cases *among* the enlarged-tonsil group; this being the desired information.

"CODED SQUARE" SHEETS

Sorting into piles, however, is a clumsy process if large record sheets are used. To overcome this mechanical difficulty, the data of each large sheet may be summarized on small cards or on a part of the large sheet set aside for the purpose; the remainder of the sheet being put out of the way by folding. The latter method is preferred because the original data are always attached and at hand for reference.

One of the authors has used a sheet of this kind, which he called the "Coded square" sheet. It is 8½ by 11 inches, and has the items printed on one side in the usual way except that there is a rectangular area set aside and ruled off into about 20 subdivisions. This area is placed so that when the sheet is folded evenly three times it is the only part left exposed. The area is therefore exactly 2¾ by 4¼ inches and occupies the position corresponding to the second quarter measured down the right-hand half of the sheet. In folding, the first fold is horizontal, the second vertical, and the third horizontal, each fold being away from the ruled area.

This form is filled out in the usual way by field workers. A tabulating clerk makes a summary of the record in the coded square by placing a few letters or numbers in each of the ruled spaces. The sheet is then folded as above described and the free margins are fastened together with a clip. When all have been thus completed the tabulations are made by the method of sorting into piles.

[1] See Pearl's "Medical Biometry and Statistics," Chap. IV.

A moment's thought will show that the function of the coded square is very similar to that of the punch card. A punch card has one column (or a group of columns) to each item, each hole in the column designating a particular record of that item. A coded square has a ruled-off space for each item, but instead of a series of holes it has a figure or letter written in the space to designate the record of that item. For small scale work, therefore, such a record has practically all the advantages of punch-cards sorting without the delay incident to the use of punch cards. Avoidance of this delay is of paramount importance. Many surveys "go stale" because of the lapse of too much time between completion of the field work and publication of the findings.

Date of Death	P. D.	Age	Ill.	Onset	Stools	Oth Mem.	Health	Ac. Ill.	Wt.
Hr.b. Feed	Feed Reg.	Breast Only	Partly Breast	Dairy	No. Br. or Cow	Feed bef. Onset	Home	Piles	Intel.

The coded square of an investigation blank used by the Baltimore City Health Department to investigate diarrhea deaths. (Approximately three-quarter size)

SUMMARY

Investigation forms should be drawn up with careful attention to subject matter, arrangement, type, and spacing. Following a set of rules is helpful in drafting forms.

Field workers should be furnished with carefully prepared written instructions before being made to use a new form. The filled-in forms should be carefully checked against omissions and inaccuracies.

For tabulating on a small scale, sorting records into piles is preferable to the usual method of counting items. Sorting into piles has the same advantages as punch-card sorting, without the delay incident to the use of cards. The "coded square" sheet facilitates tabulating by the hand-sorting method.

A COMPARISON OF FULL-TIME AND PART-TIME COUNTY HEALTH DEPARTMENTS IN MISSISSIPPI

The following comparison of full-time and part-time health departments in Mississippi was recently made by Dr. Felix J. Underwood, State health officer, in one of his Weekly Health Suggestions:

"By way of illustrating the work of an organized whole-time county health department and its value to the community at large, consideration will be given to four communicable diseases, namely, typhoid fever, diphtheria, smallpox, and scarlet fever. Comparison will be made of a county in Mississippi that has been operating for a 5-year period under a part-time health department and for a 5-year period under a full-time health department, with the average of three Mississippi counties which have like populations and have operated always under a part-time health officer. In order to deal with concrete figures, the value of a human life is placed at $5,000; the cost of a case of typhoid fever at $500; of diphtheria at $100; of smallpox at $100; of scarlet fever at $100; and of a funeral at $300.

"Since the organization of the above-mentioned full-time county health department on January 1, 1922, painstaking effort has been made to trace to its source of infection every case of each of the four above-mentioned diseases. Records show that no serious epidemic has occurred in said county since the institution of the full-time health unit. The estimated economic loss from these diseases in this full-time county for the 5-year period totals $85,400. Of this loss, $56,400 occurred in 1922 and 1923. The economic loss for the remaining three years, 1924, 1925, and 1926, amounted to $29,000. In these three years not a school child had diphtheria in this county and no person died from any of the four diseases listed.

"The average economic loss per county in the three part-time counties for this 3-year period, 1924, 1925, and 1926, was $68,132, with a total of 26 deaths from the four diseases, typhoid fever, diphtheria, smallpox, and scarlet fever.

"Under the part-time plan, conditions remain essentially the same over each 5-year period, while under the full-time plan marked improvement is shown in the prevention of cases and deaths.

"On the whole, the part-time health officer is poorly financed by his board of supervisors and has given better service than the public had any right to expect, considering the remuneration and the handicaps under which he has worked. Much of the money thus spent has been wasted, since much of the work of the part-time health officer is not in the real prevention of the disease, but in cleaning up outbreaks of communicable diseases.

"It is found, also, that wherever a full-time, active, competent county health officer is appointed he lowers the infant mortality promptly and speedily accelerates the diminution of the death rate

from tuberculosis. He engages in effective measures for the education of the public in health matters and generally succeeds in a striking manner in increasing the span of life of those who reside in the community which he serves.

"At the present time 20 counties in Mississippi are operating full-time health departments. It is hoped that the legislature of 1928 will make it possible to offer aid to at least 10 more counties, making a total of 30 of our 82 counties having the blessings of full-time health service for the next biennium."

BADGES USED TO STIMULATE DIPHTHERIA IMMUNIZATION

According to the Weekly Bulletin issued by the California State Board of Health, Dr. Wm. C. Hassler, city health officer of San Francisco, in order to stimulate enthusiasm in diphtheria immunization, has adopted the policy of giving an attractive badge to each child who has received three doses of toxin-antitoxin. More than a thousand of these badges have been given to children who were immunized during the latter part of the year 1926. The brilliantly colored button appeals to children and there is a widespread interest in the device through which a strong pride of ownership has been developed. Other health departments may be interested in the plan to adopt a particular campaign badge for this purpose.

THE ECONOMIC VALUE OF HEALTH WORK

The results of the application of modern sanitary principles in public-health work can often be demonstrated without placing an economic value on human life or considering the inestimable value of individual health. Some positive data showing the success of preventive measures in antimalaria work on a large estate in the Federated Malay States were presented by Dr. Andrew Balfour, of the Bureau of Hygiene and Tropical Diseases, London, in his address on "Why Hygiene Pays," delivered to the delegates of the West Indies Conference held in London, May 18, 1926. The following summary of Doctor Balfour's address, by Dr. J. F. C. Haslam, is taken from the Bulletin of Hygiene for January, 1927:

Doctor Balfour's address to the delegates to the recent West Indies Conference in London contains stimulus toward hygienic improvement for governing authorities and commercial interests, and, for health officers, encouragement to continued effort. He stressed, as the title indicates, the economic value of health work, pointedly referring to the success achieved in Porto Rico by the Americans * * *. The example quoted from Malay points its lesson with such force that the facts and figures should be brought home throughout our tropical possessions.

"In the case of malaria I propose to take my illustration from Malaya * * *. A commissioner not long ago contrasted the value of expenditure on hygiene (a) when the measures employed were crude and the main effort was directed to curing infected coolies, and (b) when the steps taken were guided by a knowledge

of prophylactic principles and the main effort was the prevention of disease. The estate chosen was, and is, potentially as unhealthy as any estate in the Federated Malay States.

"In 1911 the staff consisted of seven unhealthy Europeans, constantly sick, given to liquor, and taking no interest in bungalows or gardens. In 1923 there were four healthy Europeans (three married and one engaged), three healthy children, pretty gardens, comfortable bungalows, no drinking, and no absences on account of sick leave.

"In 1911 there were 870 coolies with practically no dependents. They were miserable, crawling wrecks with narrow shoulders and prominent bellies. They lived in squalid, dirty lines, void of gardens. They possessed no livestock and, saddest thing of all, perhaps, no children born alive—a miserable and degraded folk without hope, without ambition. In 1923 there were only 450 coolies, but these were doing thrice the work accomplished in 1911. Their dependents were represented by 220 healthy old people and young children. Births, as the report puts it, have become a chronic habit. The coolies were fat, well liking, and clean. They had fine gardens, over 60 head of cattle, hundreds of goats, and thousands of chickens.

"In 1911 the tappers (it was a rubber estate) were sent out to new tasks every day, and one-third to one-half of the tasks had to be completed in the evening, as the coolies returned sick or too weak to finish the work. In 1923 a coolie was not taken off his task for months, and never had to finish his work off in the evening. In 1911 a gang was sent out to dig graves every day, yet never dug sufficient for requirements, as coolies were constantly dying in the field. In conclusion, the estate in 1923 had become one of the cheapest producers in the Federated Malay States and the cost of production compared favorably with Ceylon and Java."

	1911	1923
Average cultivated	1,632 acres.	2,650 acres.
Average labor force	870 Indians only.*	450 (all labor.)
Dependents	Practically nil, due to deaths.	220.
F. O. B. cost	$1.09.	18.64 cents.
Yield	83,000 pounds.	778,000 pounds.
Total expenditures	$240,215.38.	$145,018.44.
Medical (cure)	$12,444.	$6,208.67.
Medical (prevention)	Nil.	$9,531.20.
Death rate	232 per mille.	3 per mille.
Number of deaths	202.	2.
Staff (Europeans)	7.	4.
Hospital	Overflowing.	Empty.
Total loss of labor	862.	186.
Percentage loss of labor	100.	30.
Check-roll average	30 (15 per cent below standard).	35.5 (standard).
Hospital admissions for a year	1,084.	275.

Doctor Haslam comments:

"The success of the antimalaria methods adopted in this work can not be gainsaid and should be widely known. Pessimism as to the value of well-understood methods has recently been expressed by some theorists who adopt an attitude of detachment, if not of scorn, toward the work of those whose inclination and whose duty is to fight the disease *now*, with weapons already proved useful albeit imperfect, rather than to fold the hands while awaiting a problematical *therapia magna* of the future."

* There was also a large but unknown number of Chinese.

LESS MALARIA ON THE ISTHMUS

RATE FOR EMPLOYEES OF THE PANAMA CANAL DURING 1926 IS THE LOWEST ON RECORD

The accompanying figures, just released by Col. W. P. Chamberlain, Chief Health Officer of the Panama Canal, show that the calendar year 1926 was one of the most favorable as regards malaria prevention on the Isthmus. Sanitary regulations on the Zone and in Panama and Colon require that all cases of malaria be reported to the chief health officer. On receipt of each report a careful investigation is made by the Health Department of the Panama Canal with a view to confirming the diagnosis, if necessary, and determining where the infection probably took place. The figures are carefully tabulated each week, the cases being charged to the localities where infection is considered to have taken place.

The statistics for employees of the Panama Canal are the most accurate and complete which are received by the health department, because any illness resulting in inability to do a full day's work is sure to be made of record and can be carefully investigated. The accompanying table shows the remarkable reduction in malaria among Canal employees which has been made since 1904. The rate for 1926, 14.1 per 1,000, is the best ever recorded, being slightly below the figures for the favorable years 1917 and 1921.

Cases of malaria among employees of the Panama Canal

[Total for each calendar year [1]]

Year	Force strength	Cases			Rate per 1,000
		White	Black	Total	
1904	6,213	----------	----------	777	125.0
1905	16,511	----------	----------	8,483	514.0
1906	26,547	5,134	16,659	21,793	820.9
1907	39,238	7,973	8,682	16,655	424.5
1908	43,890	6,352	6,020	12,372	281.9
1909	47,167	4,347	5,822	10,169	215.6
1910	50,802	4,884	4,603	9,487	186.7
1911	48,876	4,175	4,812	8,987	183.9
1912	50,893	2,746	2,877	5,623	110.5
1913	56,654	1,477	2,807	4,284	75.6
1914	44,329	950	2,664	3,614	81.5
1915	34,785	606	1,175	1,781	51.2
1916	33,176	180	367	547	16.5
1917	32,589	127	346	473	14.5
1918	25,520	64	410	474	18.6
1919	24,204	103	649	752	31.1
1920	20,673	85	316	401	19.4
1921	14,389	70	144	214	14.9
1922	10,447	56	120	176	16.8
1923	10,978	57	155	212	19.3
1924	11,625	55	135	190	16.3
1925	12,180	84	246	330	27.1
		[2] 77	[2] 119	[2] 196	[2] 16.1
1926	12,732	58	121	179	14.1

[1] Number of cases from 1904 to 1913, inclusive, are those admitted to hospital only. Those shown in 1914, and since, are all cases, whether or not admitted to hospital.

[2] Excluding Bruja Point, where a gang of workmen (nominally Canal employees) was installing large guns in 1925. Over half of these men acquired malaria in 5 months. Since then the area has been sanitated by the Army and very few cases occurred among these workmen in 1926.

Among 3,121 white employees, only 58 cases of malaria occurred in 1926. Twenty-six of these 58 cases obtained their infection outside the sanitated towns, and it is probable that a complete knowledge of all the facts would show that some of the 32 others should have been charged to unsanitated areas.

There have been but two deaths from malaria among employees of the Panama Canal during the last six calendar years, both occurring in 1924. One of these was of a colored man and the other of a white American who refused to see a physician until nearly moribund. Both worked at night dredging unsanitated areas.

Colonel Chamberlain warns:

"The people who are fortunate enough to live in the sanitated towns of the Canal Zone, and in the cities of Panama and Colon, should never forget that the safe areas extend less than a mile from the town or city borders. Visits outside the towns at or after sunset are always dangerous."

PUBLIC HEALTH ENGINEERING ABSTRACTS

Legislation Relating to Fruit and Vegetable Preservation. Report of Committee on Fruits, Vegetables, and their Products. *American Journal of Public Health*, Vol. 16, No. 11, November, 1926, pp. 1085–1087. (Abstract by E. S. Tisdale.)

A compilation of data from 44 States, the Territory of Hawaii, Porto Rico, and District of Columbia, regarding the legislation governing fruit and vegetable preservation. Department of Health enforces the law in 20 States, the Department of Agriculture in 23, and especially elected or appointed food commissioners in 3. This article describes somewhat in detail the nature of legislation in the various States, the methods of inspection, and some of the replies to the questionnaires. The subject of reportable food poisoning diseases and the prevalence of food poisoning is discussed; also considerable data regarding these diseases are given.

Sanitary Survey of the Coal Mines of Alabama. Surgeon F. V. Meriwether, Bureau of Mines. Serial No. 2746, Bureau of Mines, April, 1926, 20 pages. (Abstract by Isador W. Mendelsohn.)

This report considers the sanitary and health conditions of 21 towns and 4 mine villages according to surveys made in the past few years under the following headings: Population; general description of towns; water supply; sewage disposal; industrial waste; health department; communicable diseases; medical inspection of schools; control of food supplies; general sanitation of public places; housing conditions; garbage and refuse disposal; stable and bath houses.

Water supply.—The sources of water supply are streams, springs, and wells. Bored wells are 40 to 850 feet deep; dug wells are 25 to

60 feet deep. Water from some of the streams and springs is used untreated. Where bored wells are used, 30 per cent have pumps, and 70 per cent bottom valve buckets and chains.

Sewage disposal.—None of the towns have sewerage systems. Five per cent of the towns use septic tanks, 45 per cent pail privies, 15 per cent pit privies, 25 per cent open-surface privies, and 10 per cent pit and pail.

Industrial wastes.—According to a study made at the Auburn State Agricultural College, soil treated with coal mine water is favorable for the raising of corn.

Recreational Use of San Diego's Water-Supply Reservoirs. R. C. Wueste. *Engineering News Record*, Vol. 97, No. 10, September 2, 1926, pp. 386–388. (Abstract by Paul S. Fox.)

Privately owned water companies in San Diego County, as well as in the city, are featuring recreational use of their reservoirs. The cost to the city, including interest and depreciation on equipment used, and operating salaries, amounts to about 25 per cent of the gross receipts. There has been cooperation with the California Game and Fish Commission. Water fowl hunting has been regulated. Facilities for campers have been provided.

The sanitary control measures are: (1) Shore-line toilets of pan type at half-mile intervals; (2) parking of automobiles restricted to designated areas marked by signs and provided with garbage cans and pan toilets; (3) overnight camping restricted to station headquarters on an area draining away from the reservoir, and provided with garbage cans, flush toilets, street lights, and other conveniences and attractions; (4) daily shore and water patrol by car and motor boat for supervision and surveillance of permittees; (5) maintenance of all elements in a high state of cleanliness and orderliness.

Water Softening by Zeolite Method. C. W. Sturdevant. *Water Works*, Vol. 65, No. 11, November, 1926, pp. 519–520. (Abstract by L. D. Bell.)

This article describes the experience of the Southern Pacific Railroad in the use of zeolite for softening water to be used in locomotive boilers. Useful information is given in regard to the cost of this method of treatment, the kinds and quantities of chemicals used, and the nature of the water treated. The waters which are being treated are, by analysis, similar to those found elsewhere.

In some cases trouble has been caused by foaming which results when the salt water dissolves the old boiler scale and forms a heavy sludge within the boiler. However, with reasonable care in blowing off and washing the boiler properly at regular intervals, little if any difficulty will be experienced, and the old scale will soon disappear.

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Results obtained through experimental tests and through actual experience have, in general, been highly satisfactory and a marked reduction in the maintenance cost of boiler has resulted through the use of this method of treatment as well as savings due to reduction in boiler washings.

Experimental Water Purification Plant. Frederic J. Moss. *Water Works*, Vol 65, No. 11. November, 1926, pp. 523–528. (Abstract by L. D. Bell.)

The experimental water purification plant of the United States Public Health Service at Cincinnati is discussed in this article under the following main heads: (1) History of experiment; (2) object of the plant; (3) features of design; (4) experimental features; (5) intake (6) river water pumps; (7) force main; (8) sewage and dilution water; (9) mixing device; (10) coagulation basin; (11) filters; (12) clear water reservoirs; (13) chlorinator; (14) wash water storage; (15) coagulant system; (16) piping; (17) operation schedule; (18) sample collections; (19) laboratory control.

The primary purpose in conducting this experiment was to determine the efficiency of the modern filter plant in producing from a raw water of various degrees of pollution, an effluent conforming to accepted standards of bacterial quality. "Provision is made for continuous supplies of sewage, and, likewise, of filtered water for dilution purposes, thus making it possible, by mixing either one or both of these supplies with the river water, to obtain a raw water ranging from sewage to a highly diluted river water."

"The plant is of the rapid sand type, similar in its main features to most of the full scale plants found along the Ohio River and on other inland streams of the United States. Although every effort was made to have the plant conform to current practice in its design, in order that the results obtained from its operation might be fairly representative of those to be expected from full scale plants of similar type, it exhibits some features, designed especially for experimental purposes, which are unusual to municipal plants engaged in the active service of supplying water to domestic consumers."

Submerged Contact-Aerators for Sewage Treatment. Dr. Karl Imhoff, chief engineer of the Ruhrverband, Essen, Germany. *Engineering News-Record*, Vol. 97, No. 24, December 9, 1926, pp. 948–949. (Abstract by H. R. Crohurst.)

Doctor Imhoff describes contact-aerators installed in a two-story tank at Kettwig in the Ruhr district of Germany. The aerator consists of brushwood suspended in a wooden form in the upper compartment of the tank beneath which is a moving air pipe suspended as a pendulum. In operation, the mixture of air and sewage

being lighter than the sewage outside, there is a circulation up through the brushwood bringing sewage in contact with the biological growths on the material of the aerator. The efficiency of the aerators with short periods of treatment is said to be surprisingly high. Construction costs are only 5 to 10 per cent of the cost of the two-story tanks, and the power consumption is only 1 to 1½ hp. per million United States gallons, the air quantity being 0.1 cu. ft. per U. S. gallon. It is uncertain whether the contact aerators would be economical where full biological treatment equal to the efficiency of a good activated-sludge plant is necessary, but they promise to be economical for certain conditions, as—(1) For partial purification that occurs where settling is not sufficient and full biological treatment is not necessary; (2) for preliminary treatment in trickling filter plants or activated-sludge plants to increase capacity; (3) for city sewage containing objectionable industrial wastes, as the aerators are less sensible to disturbances than are other devices.

Sewage Treatment at Fitchburg, Mass. Herbert B. Allen. *Public Works*, Vol. 57, No. 9, October, 1926, pp. 343–344. (Abstract by M. S. Foreman.)

This article is a synopsis of a report of Herbert B. Allen, chemist in charge of the sewage disposal works at Fitchburg, Mass., to the commissioner of public works.

The Imhoff tanks were characterized by no foaming in the vents and no congestion of the digestion compartments. Another significant feature was that the surface of sewage in the tanks was continuously free from gas-lifted sludge. "Analysis of the effluent indicated a removal of total suspended matter varying from 63.2 per cent in April to 84.2 per cent in June, with an average of 75.1 per cent for the year."

Waste crank-case oil has increased in the last few years to such an extent that it has caused considerable trouble by decreasing good biological action. In order to eliminate the oil before it passed to the sprinkling filters, a flushing device was installed in each of the Imhoff tanks.

A diagram of the flushing device is given, which consists of several fan shaped jets of water that play on the surface of the sewage in the tanks. All of the grease and other floating material is forced to one corner and eliminated. Odors are eliminated during the hot weather by operating the flushing device twice a day. "The yearly cost of sewage disposal was $15,649, equivalent to $13.25 per million gallons of sewage treated and to $0.392 per capita served."

More Camps Approved. Anon. *Ohio Health News*, Vol. 2, No. 14, July 16, 1926, pp. 3–4. (Abstract by I. W. Mendelsohn.)

In June, 1926, 56 additional tourist camps and filling stations in 26 counties were approved by the Ohio State Department of Health as having met departmental requirements in sanitation, making 103 in all. A complete list of approved tourist camps and filling stations is given. In addition, the department has approved one labor camp, in Mahoning County, and 39 private camps, which include Y. M. C. A. and Y. W. C. A. camps, etc., scattered in 12 counties.

Examination for Entrance into the Regular Corps of the United States Public Health Service

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

Washington, D. C	May 2, 1927
Chicago, Ill	May 2, 1927
New Orleans, La	May 2, 1927
San Francisco, Calif	May 2, 1927

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

DEATHS DURING WEEK ENDED FEBRUARY 5, 1927

Summary of information received by telegraph from industrial insurance companies for week ended February 5, 1927, and corresponding week of 1926. (From the Weekly Health Index, February 9, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 5, 1927	Corresponding week, 1926
Policies in force	66, 658, 783	63, 335, 002
Number of death claims	13, 939	12, 377
Death claims per 1,000 policies in force, annual rate	10. 9	10. 2

Deaths from all causes in certain large cities of the United States during the week ended February 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, February 9, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 5, 1927 [2]
	Total deaths	Death rate [1]		Week ended Feb. 5, 1927	Corresponding week, 1926	
Total (68 cities)	7,885	13.8	14.9	879	911	[3] 74
Albany [4]	37	16.1	14.5	4	1	83
Atlanta	80			10	8	
White	44			3	4	
Colored	36	(5)		7	4	
Baltimore [4]	247	15.7	21.9	24	26	74
White	186		19.6	16	19	62
Colored	61	(5)	35.1	8	7	124
Birmingham	70	17.0	24.2	10	9	
White	32		20.4	1	3	
Colored	38	(5)	30.2	9	6	
Boston	236	15.5	15.1	26	30	73
Bridgeport	39			1	2	19
Buffalo	158	15.0	14.9	13	19	55
Cambridge	34	14.3	12.4	7	1	124
Camden	35	13.7	16.7	6	5	103
Canton	15	6.9	11.4	3	6	71
Chicago [4]	775	13.0	12.9	104	86	90
Cincinnati	142	18.0	20.7	18	10	112
Cleveland	191	10.1	12.9	16	25	42
Columbus	81	14.5	15.4	12	7	112
Dallas	54	13.5	14.6	7	7	
White	38		13.0	4	5	
Colored	16	(5)	25.1	3	2	
Dayton	54	15.6	8.8	4	2	66
Denver	84	15.1	16.8	11	9	
Des Moines	20	7.0	16.1	3	4	50
Detroit	290	11.3	12.6	45	57	71
Duluth	23	10.4	11.1	1	4	22
El Paso	32	14.6	27.3	4	11	
Erie	31			3	3	59
Fall River [4]	31	12.2	12.7	3	7	53
Flint	34	12.4	10.4	10	4	163
Fort Worth	35	11.1	14.4	4	6	
White	32		13.4	4	5	
Colored	3	(5)	22.0	0	1	
Grand Rapids	33	10.8	10.7	7	5	103
Houston	51			11	6	
White	38			9	5	
Colored	13	(5)		2	1	
Indianapolis	102	14.2	12.9	11	5	86
White	89		12.4	9	5	81
Colored	13	(5)	16.6	2	0	122
Jersey City	74	12.0	15.4	7	15	52
Kansas City, Kans	30	13.4	14.3	6	2	117
White	26		15.1	5	2	111
Colored	4	(5)	10.2	1	0	152
Kansas City, Mo	99	13.5	17.1	18	12	
Los Angeles	285			21	23	60
Louisville	94	15.3	14.8	4	8	34
White	66		14.0	1	6	10
Colored	28	(5)	18.9	3	2	210
Lowell	30	14.2	19.9	4	2	77
Lynn	30	14.9	11.5	2	1	53
Memphis	57	16.6	22.1	4	3	
White	32		15.6	0	2	
Colored	25	(5)	33.9	4	1	
Milwaukee	111	11.0	11.9	15	15	70
Minneapolis	100	11.8	11.9	9	17	51
Nashville [4]	52	19.6	22.8	7	10	
White	36		21.8	7	8	
Colored	16	(5)	25.4	0	2	
New Bedford	48	20.9	10.0	8	5	139
New Haven	44	12.4	12.3	2	3	28
New Orleans	140	17.2	27.4	16	21	
White	88		21.7	9	11	
Colored	52	(5)	43.5	7	10	

(Footnotes at bottom of p. 496)

Deaths from all causes in certain large cities of the United States during the week ended February 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Feb. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 5, 1924 [2]
	Total deaths	Death rate [1]		Week ended Feb. 5, 1927	Corresponding week, 1926	
New York	1,573	13.7	14.6	172	183	71
Bronx Borough	204	11.5	11.1	17	19	54
Brooklyn Borough	536	12.3	12.2	65	74	67
Manhattan Borough	636	18.3	20.2	70	75	82
Queens Borough	154	9.9	11.1	18	11	77
Richmond Borough	43	15.3	18.6	2	4	37
Newark, N. J.	112	12.5	13.5	15	18	74
Norfolk	30	8.7	9.0	5	2	101
White	13		5.6	1	1	33
Colored	17	(5)	14.9	4	1	212
Oakland	58	11.3	11.6	5	3	59
Oklahoma City	33			5	2	
Omaha	73	17.4	12.1	7	8	78
Paterson	45	16.3	18.2	4	4	71
Philadelphia	575	14.7	15.4	51	62	68
Pittsburgh	226	18.3	14.7	29	19	101
Portland, Oreg	94			9	4	95
Providence	68	12.6	16.1	7	11	59
Richmond	57	15.5	13.8	2	7	26
White	35		10.9	0	4	0
Colored	22	(5)	20.9	2	3	76
Rochester	84	13.5	12.3	9	9	76
St. Louis	229	14.2	14.4	13	25	
St. Paul	46	9.6	11.4	7	3	64
Salt Lake City [4]	42	16.1	19.2	5	9	76
San Antonio	60	14.8	20.1	5	12	
San Diego	42	19.0	22.8	4	1	85
San Francisco	199	18.0	18.1	10	6	62
Schenectady	24	13.5	17.9	3	2	90
Seattle	75			5	6	52
Somerville	19	9.7	8.9	3	2	108
Spokane	26	12.4	12.0	2	1	50
Springfield, Mass	36	12.8	16.2	4	5	62
Syracuse	61	16.1	14.1	9	3	116
Tacoma	23	11.2	13.8	2	3	47
Toledo	68	11.7	11.7	8	6	77
Trenton	40	15.2	16.7	3	5	52
Utica	38	19.2	14.2	5	1	114
Washington, D. C.	165	15.9	18.6	17	19	98
White	100		15.7	9	10	78
Colored	65	(5)	26.9	8	9	147
Waterbury	26			5	2	118
Wilmington, Del	22	9.1	15.1	0	1	0
Worcester	57	15.2	14.8	5	7	60
Yonkers	20	8.8	9.9	7	4	159
Youngstown	45	13.9	10.1	6	10	84

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Feb. 4, 1927.
[5] In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended February 12, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	3
Chicken pox	65
Diphtheria	36
Influenza	131
Malaria	1
Measles	180
Mumps	21
Ophthalmia neonatorum	1
Pellagra	2
Pneumonia	109
Scarlet fever	16
Smallpox	57
Trachoma	4
Tuberculosis	39
Typhoid fever	4
Whooping cough	69

ARIZONA

	Cases
Cerebrospinal meningitis	1
Chicken pox	66
Diphtheria	1
Measles	29
Mumps	6
Scarlet fever	58
Smallpox	1
Tuberculosis	13
Whooping cough	14

ARKANSAS

	Cases
Chicken pox	109
Diphtheria	10
Influenza	99
Malaria	19
Measles	16
Mumps	47
Pellagra	6
Scarlet fever	19
Smallpox	3
Tuberculosis	7
Typhoid fever	6
Whooping cough	46

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Contra Costa County	1
Los Angeles	2
Oakland	1
Sacramento	1
San Francisco	1
Visalia	1
Chicken pox	668
Diphtheria	139
Influenza	101
Lethargic encephalitis	3
Measles	2,377
Mumps	257
Poliomyelitis:	
Los Angeles	1
Palo Alto	1
Scarlet fever	267
Smallpox	21
Tuberculosis	181
Typhoid fever	10
Whooping cough	93

CONNECTICUT

	Cases
Crebrospinal meningitis	2
Chicken pox	103
Conjunctivitis (infectious)	1
Diphtheria	31
German measles	5
Influenza	5
Lethargic encephalitis	4
Measles	121
Mumps	50
Pneumonia (broncho)	39
Pneumonia (lobar)	34
Scarlet fever	101
Septic sore throat	3
Tuberculosis (all forms)	31
Whooping cough	54

DELAWARE

	Cases
Diphtheria	2
Influenza	1
Measles	4
Pneumonia	1
Scarlet fever	28
Tuberculosis	1
Whooping cough	3

FLORIDA

Cerebrospinal meningitis	2
Chicken pox	63
Diphtheria	48
Hookworm disease	26
Influenza	18
Malaria	3
Measles	35
Mumps	20
Pneumonia	12
Scarlet fever	10
Smallpox	59
Tetanus	1
Tuberculosis	25
Typhoid fever	5
Whooping cough	14

GEORGIA

Cerebrospinal meningitis	1
Chicken pox	51
Conjunctivitis (infectious)	2
Diphtheria	25
Dysentery	2
Influenza	174
Malaria	17
Measles	139
Mumps	13
Pellagra	1
Pneumonia	48
Scarlet fever	32
Septic sore throat	4
Smallpox	143
Tuberculosis	34
Typhoid fever	4
Typhus fever	1
Whooping cough	47

IDAHO

Cerebrospinal meningitis—Kellogg	1
Chicken pox	8
Conjunctivitis	1
Diphtheria	1
Measles	93
Mumps	8
Scarlet fever	30
Smallpox	3
Typhoid fever	2
Whooping cough	6

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	1
Winnebago County	1
Chicken pox	418
Diphtheria	111
Influenza	37
Lethargic encephalitis:	
Cook County	1
Effingham County	1
Saline County	1
Whiteside County	1
Measles	1,851
Mumps	328
Pneumonia	329
Poliomyelitis—Knox County	1
Scarlet fever	326
Smallpox	38
Tuberculosis	228
Typhoid fever	16
Whooping cough	199

INDIANA

Chicken pox	112
Diphtheria	31
Influenza	41
Measles	261
Mumps	3
Pneumonia	21
Scarlet fever	451
Smallpox	128
Tuberculosis	23
Typhoid fever	5
Whooping cough	44

IOWA

Cerebrospinal meningitis:	
Hopkinton	1
Iowa City	1
Chicken pox	45
Diphtheria	28
German measles	3
Measles	425
Mumps	22
Poliomyelitis—Bellevue	1
Scarlet fever	78
Septic sore throat	3
Smallpox	10
Tuberculosis	12
Whooping cough	18

KANSAS

Chicken pox	240
Diphtheria	31
German measles	4
Influenza	2
Malaria	1
Measles	387
Mumps	62
Pneumonia	39
Poliomyelitis—Wellington	1
Scarlet fever	183
Septic sore throat	7
Smallpox:	
Topeka	17
Scattering	32
Tetanus	1
Tuberculosis	56
Typhoid fever	1
Whooping cough	90

LOUISIANA

	Cases
Diphtheria	23
Influenza	41
Leprosy	1
Malaria	4
Measles	110
Pneumonia	29
Scarlet fever	15
Smallpox	6
Tuberculosis	11
Typhoid fever	12
Whooping cough	11

MAINE

Chicken pox	75
Diphtheria	1
German measles	33
Influenza	12
Measles	280
Mumps	8
Paratyphoid fever	1
Pellagra	1
Pneumonia	25
Scarlet fever	17
Tuberculosis	8
Typhoid fever	3
Vincent's angina	5
Whooping cough	47

MARYLAND[1]

Chicken pox	171
Diphtheria	55
Dysentery	1
German measles	1
Impetigo contagiosa	1
Influenza	63
Measles	24
Mumps	23
Paratyphoid fever	1
Pneumonia (broncho)	55
Pneumonia (lobar)	50
Scarlet fever	99
Septic sore throat	7
Tuberculosis	39
Typhoid fever	11
Vincent's angina	1
Whooping cough	116

MASSACHUSETTS

Chicken pox	361
Conjunctivitis (suppurative)	7
Diphtheria	116
German measles	6
Influenza	17
Lethargic encephalitis	2
Measles	265
Mumps	282
Ophthalmia neonatorum	10
Pneumonia (lobar)	127
Poliomyelitis	1
Scarlet fever	499
Septic sore throat	8
Trachoma	2
Tuberculosis (pulmonary)	105
Tuberculosis (other forms)	23
Typhoid fever	9
Whooping cough	133

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	103
Measles	117
Pneumonia	137
Scarlet fever	328
Smallpox	38
Tuberculosis	36
Typhoid fever	6
Whooping cough	117

MINNESOTA

Cerebrospinal meningitis	2
Chicken pox	152
Diphtheria	32
Influenza	5
Lethargic encephalitis	2
Measles	446
Pneumonia	2
Scarlet fever	281
Smallpox	19
Tuberculosis	52
Typhoid fever	4
Whooping cough	22

MISSISSIPPI

Diphtheria	12
Scarlet fever	11
Smallpox	11
Typhoid fever	5

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	1
Chicken pox	63
Diphtheria	57
Influenza	11
Measles	169
Mumps	39
Pneumonia	2
Scarlet fever	122
Tetanus	1
Tuberculosis	27
Typhoid fever	6
Whooping cough	36

MONTANA

Cerebrospinal meningitis	1
Chicken pox	19
Diphtheria	5
Measles	113
Mumps	19
Scarlet fever	113
Smallpox	7

NEBRASKA

Cerebrospinal meningitis	1
Chicken pox	41
Diphtheria	4
German measles	25
Influenza	25
Measles	204
Mumps	44
Pneumonia	2
Scarlet fever	41
Smallpox	15
Typhoid fever	1
Whooping cough	20

NEW JERSEY

	Cases
Cerebrospinal meningitis	2
Chicken pox	322
Diphtheria	106
Influenza	31
Measles	49
Pneumonia	123
Scarlet fever	296
Trachoma	1
Typhoid fever	3
Whooping cough	207

NEW MEXICO

	Cases
Chicken pox	58
Conjunctivitis	1
Diphtheria	4
German measles	46
Influenza	5
Measles	21
Mumps	22
Pneumonia	8
Scarlet fever	32
Smallpox	4
Trachoma	2
Tuberculosis	28
Typhoid fever	4
Whooping cough	5

NEW YORK

(Exclusive of New York City)

	Cases
Anthrax	1
Cerebrospinal meningitis	3
Chicken pox	466
Diphtheria	59
German measles	194
Lethargic encephalitis	1
Malaria	2
Measles	676
Mumps	319
Ophthalmia neonatorum	2
Pneumonia	258
Poliomyelitis	3
Scarlet fever	238
Septic sore throat	5
Smallpox	10
Tetanus	2
Typhoid fever	11
Vincent's angina	13
Whooping cough	275

NORTH CAROLINA

	Cases
Cerebrospinal meningitis	1
Chicken pox	238
Diphtheria	34
German measles	16
Measles	227
Scarlet fever	56
Septic sore throat	4
Smallpox	45
Typhoid fever	5
Whooping cough	707

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis	1
Chicken pox	28
Diphtheria	22
Influenza	236

[2] Deaths.

OKLAHOMA—continued

	Cases
Measles	125
Mumps	10
Pneumonia	99
Scarlet fever	47
Smallpox:	
Grady County	23
Scattering	21
Typhoid fever	17
Whooping cough	14

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	37
Diphtheria	17
Influenza	331
Measles	75
Mumps	24
Pneumonia	[2] 13
Scarlet fever	46
Septic sore throat	3
Smallpox	11
Tuberculosis	[2] 3
Typhoid fever	8
Whooping cough	2

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—	
Greene County	1
Philadelphia	2
Chicken pox	837
Diphtheria	204
German measles	80
Impetigo contagiosa	10
Lethargic encephalitis	1
Measles	942
Mumps	327
Ophthalmia neonatorum	6
Pneumonia	260
Rabies—Harrisburg	1
Scabies	9
Scarlet fever	724
Smallpox	1
Tuberculosis	131
Typhoid fever	33
Whooping cough	290

RHODE ISLAND

	Cases
Chicken pox	17
Diphtheria	6
German measles	1
Mumps	9
Ophthalmia neonatorum	1
Pneumonia	2
Scarlet fever	21
Tuberculosis	5

SOUTH CAROLINA

	Cases
Chicken pox	149
Dengue	2
Diphtheria	28
Hookworm disease	32
Influenza	1,363
Malaria	129
Measles	29
Pellagra	41
Poliomyelitis	3
Scarlet fever	17

SOUTH CAROLINA—continued

	Cases
Smallpox	7
Tuberculosis	75
Typhoid fever	7
Whooping cough	111

SOUTH DAKOTA

	Cases
Chicken pox	31
Diphtheria	11
Influenza	2
Measles	130
Mumps	8
Pneumonia	11
Scarlet fever	106
Smallpox	2
Tuberculosis	3
Whooping cough	2

TENNESSEE

	Cases
Cerebrospinal meningitis:	
Memphis	1
Nashville	2
Trousdale County	1
Chicken pox	102
Diphtheria	13
Influenza	70
Measles	72
Mumps	6
Ophthalmia neonatorum	1
Pellagra	6
Pneumonia	75
Scarlet fever	65
Smallpox	14
Tuberculosis	29
Typhoid fever	12
Whooping cough	82

TEXAS

	Cases
Chicken pox	144
Diphtheria	57
Influenza	70
Leprosy	1
Measles	18
Mumps	91
Pneumonia	11
Scarlet fever	52
Smallpox	56
Tetanus	1
Trachoma	10
Tuberculosis	34
Typhus fever	1
Whooping cough	13

UTAH

	Cases
Chicken pox	29
Diphtheria	4
German measles	46
Influenza	3
Measles	263
Mumps	21
Pneumonia	1
Scarlet fever	17
Smallpox	1
Typhoid fever	1
Whooping cough	1

VERMONT

	Cases
Chicken pox	20
Diphtheria	3
Measles	101
Mumps	25
Scarlet fever	8
Whooping cough	74

WASHINGTON

	Cases
Cerebrospinal meningitis	6
Chicken pox	101
Diphtheria	37
German measles	98
Influenza	7
Measles	259
Mumps	80
Pneumonia	2
Scarlet fever	128
Smallpox	39
Trachoma	1
Tuberculosis	59
Typhoid fever	2
Whooping cough	20

WEST VIRGINIA

	Cases
Chicken pox	98
Diphtheria	27
Influenza	37
Measles	164
Scarlet fever	70
Smallpox	12
Tuberculosis	11
Typhoid fever	17
Whooping cough	122

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	110
Diphtheria	26
Influenza	1
Measles	39
Mumps	46
Pneumonia	20
Scarlet fever	56
Smallpox	1
Tuberculosis	7
Whooping cough	38
Scattering:	
Cerebrospinal meningitis	8
Chicken pox	146
Diphtheria	15
German measles	22
Influenza	130
Measles	726
Mumps	142
Pneumonia	15
Scarlet fever	177
Smallpox	10
Trachoma	1
Tuberculosis	23
Whooping cough	70

WYOMING

	Cases
Chicken pox	9
Diphtheria	3
German measles	20
Influenza	1
Measles	379
Pneumonia	1
Scarlet fever	23
Whooping cough	2

Reports for Week Ended February 5, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	71
Diphtheria	12
Influenza	2
Lethargic encephalitis	1
Measles	5
Pneumonia	27
Scarlet fever	25
Smallpox	2
Tuberculosis	27
Whooping cough	16

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	23
Diphtheria	4
Measles	94
Mumps	8
Ophthalmia neonatorum	1

NORTH DAKOTA—continued

	Cases
Pneumonia	3
Scarlet fever	61
Smallpox	3
Tuberculosis	2
Typhoid fever	2

SOUTH DAKOTA

	Cases
Chicken pox	19
Diphtheria	7
Influenza	7
Measles	183
Mumps	15
Pneumonia	30
Poliomyelitis	1
Scarlet fever	80
Smallpox	12
Tuberculosis	2
Whooping cough	28

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
December, 1926										
Colorado		96	8		250		0	538	61	6
Hawaii Territory		27	5		105		2	1	0	17
January, 1927										
Arizona		14	16		68		1	36	0	1
Connecticut	5	140	97		145		2	430	0	12
Massachusetts	5	461	74		719	1	6	2,150	0	36
Nebraska	1	28	33		425		1	256	107	6
Vermont	0	10			529		0	42	0	1

December, 1926

	Cases
Angina:	
Colorado	2
Chicken pox:	
Colorado	181
Hawaii Territory	9
Conjunctivitis (follicular):	
Hawaii Territory	57
Dysentery:	
Colorado	1
German measles:	
Colorado	6
Hookworm disease:	
Hawaii Territory	1
Leprosy:	
Hawaii Territory	1
Mumps:	
Colorado	12
Paratyphoid fever:	
Hawaii Territory	1
Scabies:	
Colorado	1
Tetanus:	
Hawaii Territory	3
Trachoma:	
Hawaii Territory	120
Whooping cough:	
Colorado	14
Hawaii Territory	38

January, 1927

	Cases
Actinomycosis:	
Massachusetts	1
Anthrax:	
Massachusetts	1
Chicken pox:	
Arizona	57
Connecticut	507
Massachusetts	1,729
Nebraska	237
Vermont	166
Conjunctivitis (infectious):	
Connecticut	2

German measles:	Cases
Connecticut	16
Massachusetts	62
Nebraska	24
Lethargic encephalitis:	
Connecticut	4
Massachusetts	6
Nebraska	1
Mumps:	
Arizona	3
Connecticut	143
Massachusetts	1,272
Nebraska	114
Vermont	129
Ophthalmia neonatorum:	
Massachusetts	161
Paratyphoid fever:	
Connecticut	2

Rabies in animals:	Cases
Connecticut	1
Septic sore throat:	
Connecticut	13
Massachusetts	24
Nebraska	13
Vermont	2
Tetanus:	
Massachusetts	1
Trachoma:	
Arizona	81
Connecticut	1
Massachusetts	4
Whooping cough:	
Arizona	7
Connecticut	242
Massachusetts	641
Nebraska	43
Vermont	227

INFLUENZA IN THE UNITED STATES, JANUARY 1925, 1926, AND 1927

The following table gives a comparison of the numbers of cases of influenza reported by State health officers during four weeks of January of the years 1925, 1926, and 1927. The reports are obviously incomplete. Some States do not require reports of cases of this disease, and many cases, especially those of mild type, are not reported. However, the figures furnish an index of the trend of the disease.

Influenza cases reported by State health officers for four weeks of January, 1925, 1926, and 1927

	Week ended—											
	Jan. 10, 1925	Jan. 9, 1926	Jan. 8, 1927	Jan. 17, 1925	Jan. 16, 1926	Jan. 15, 1927	Jan. 24, 1925	Jan. 23, 1926	Jan. 22, 1927	Jan. 31, 1925	Jan. 30, 1926	Jan. 29, 1927
Alabama	210	204	74	277	147	99	467	183	100	610	326	91
Arkansas	151	126	109	218	174	121	201	199	121	243	211	100
California	37	355	37	22	614	41	53	861	39	72	755	44
Connecticut	3	9	12	5	5	24	4	9	28	7	12	31
Delaware	2	5	0	1	4	1	0	4	2	4	0	1
District of Columbia	2	5	2	4	6	10	0	2	1	1	6	1
Florida	16	22	1	49	11	0	63	22	5	25	25	45
Georgia	26	138	101	44	335	107	115	342	173	242	448	159
Illinois	33	34	47	23	29	88	37	42	100	39	43	53
Indiana	79	83	79	75	50	139	62	49	89	45	42	73
Kansas	11	20	12	23	25	22	4	19	8	12	50	9
Louisiana	33	28	27	31	41	21	67	51	28	86	120	53
Maine	13	3	24	8	3	5	17	3	40	6	14	27
Maryland	158	82	61	200	96	96	128	454	82	105	1,073	115
Massachusetts	11	17	15	13	12	12	124	11	17	21	16	27
Minnesota	0	1	0	0	2	3	0	3	2	0	3	2
Missouri	34	39	51	120	19	2	24	6	18	32	22	9
Montana	0	0	1	0	0	0	0	1	0	0	1	0
Nebraska	0	5	1	0	2	5	0	1	0	5	2	27
New Jersey	15	21	23	22	24	28	14	39	44	17	21	40
New Mexico	2	(a)	0	15	5	(a)	7	2	16	29	3	8
Oklahoma	(a)	281	265	(a)	308	274	(a)	421	403	582	451	297
Oregon	9	7	30	8	21	23	(a)	62	43	1	49	111
South Carolina	(a)	(a)	779	(a)	(a)	914	(a)	1,450	1,005	(a)	1,460	1,299
Tennessee	(a)	107	57	(a)	180	83	(a)	94	69	(a)	137	147
Texas	473	14	42	419	91	408	4,226	47	59	887	114	248
Utah	(a)	0	0	(a)	14	0	(a)	116	2	0	662	2
Wisconsin	37	42	38	24	42	35	35	30	60	43	52	51
Wyoming	0	0	9	0	4	0	0	4	1	1	10	0

[a] No report.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 29, 1927, January 30, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,588	2,001	
101 cities	831	1,055	1,116
Measles:			
40 States	14,367	9,764	
101 cities	8,084	2,473	
Poliomyelitis:			
43 States	25	25	
Scarlet fever:			
43 States	4,669	5,964	
101 cities	1,673	2,292	1,363
Smallpox:			
43 States	945	1,079	
101 cities [1]	234	155	125
Typhoid fever:			
43 States	244	217	
101 cities	47	44	49
Deaths reported			
Influenza and pneumonia:			
95 cities	1,309	1,065	

[1] No deaths from smallpox were reported by these cities for the week this year.

City reports for week ended January 29, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	28	2	0	0	0	2	0	7
New Hampshire:									
Concord	22,546	0	0	0	0	0	62	0	0
Manchester	83,097	0	2	1	0	2	0	0	.7
Vermont:									
Barre	10,008	1	0	1	0	0	27	0	0
Burlington	24,089	6	1	1	0	0	0	0	1
Massachusetts:									
Boston	779,620	106	66	38	9	1	35	95	21
Fall River	128,993	10	6	6	1	1	1	8	4
Springfield	142,065	18	3	6	1	0	1	2	3
Worcester	190,757	11	6	3	0	0	2	13	6
Rhode Island:									
Pawtucket	69,760	5	1	0	0	0	0	0	1
Providence	267,918	0	10	4	0	1	0	0	4
Connecticut:									
Bridgeport	(1)	1	9	11	1	1	8	0	4
Hartford	160,197	14	8	1	1	0	0	3	8
New Haven	178,927	26	3	0	0	0	1	1	10
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	43	14	11	--------	1	3	12	20
New York	5,873,356	351	207	289	169	23	26	374	180
Rochester	316,786	9	12	11	--------	1	3	1	6
Syracuse	182,003	15	7	2	--------	0	10	5	8
New Jersey:									
Camden	128,642	3	5	16	2	0	2	0	2
Newark	452,513	44	24	9	20	2	5	38	15
Trenton	132,020	7	7	1	0	0	0	0	4
Pennsylvania:									
Philadelphia	1,979,364	199	81	64	--------	14	6	84	59
Pittsburgh	631,563	57	20	11	--------	3	35	1	44
Reading	112,707	11	5	0	--------	0	3	7	6
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	17	9	6	0	5	2	31	19
Cleveland	936,485	158	35	49	5	1	2	9	16
Columbus	279,836	5	4	1	0	0	1	0	8
Toledo	287,380	74	8	2	3	3	12	9	9
Indiana:									
Fort Wayne	97,846	6	4	0	0	0	9	0	2
Indianapolis	358,819	54	12	9	0	2	10	4	12
South Bend	80,091	6	1	3	0	0	29	0	3
Terre Haute	71,071	3	1	0	0	0	0	0	3
Illinois:									
Chicago	2,995,239	166	105	87	47	18	533	57	68
Peoria	81,564	4	1	0	0	1	58	8	7
Springfield	63,923	13	1	2	0	0	105	0	2

[1] No estimate made.

City reports for week ended January 29, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit	1,245,824	101	66	69	10	5	6	53	42
Flint	130,316	23	7	3	0	0	3	1	4
Grand Rapids	153,698	17	4	1	0	0	3	0	2
Wisconsin:									
Kenosha	50,891	23	2	0	0	0	58	35	1
Madison	46,385	46	1	0	0	0	3	0	0
Milwaukee	509,192	115	21	32	2	1	40	50	14
Racine	67,707	22	1	0	0	0	1	15	2
Superior	39,671	2	1	0	0	0	2	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	1	2	3	0	0	25	0	3
Minneapolis	425,435	133	22	17	0	0	15	0	12
St. Paul	246,001	24	15	0	0	1	4	1	11
Iowa:									
Davenport	52,469	3	1	0	0	--------	25	0	--------
Des Moines	141,441	0	3	1	0	--------	0	0	--------
Sioux City	76,411	12	1	1	0	--------	--------	1	--------
Waterloo	36,771	18	1	0	0	--------	19	0	--------
Missouri:									
Kansas City	367,481	81	10	4	0	0	15	2	14
St. Joseph	78,342	3	3	0	0	0	2	0	3
St. Louis	821,543	53	53	33	0	0	9	26	--------
North Dakota:									
Fargo	26,403	1	0	0	0	0	5	0	1
Grand Forks	14,811	5	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15,036	8	0	0	0	--------	4	2	--------
Sioux Falls	30,127	0	0	0	0	--------	1	0	--------
Nebraska:									
Lincoln	60,941	14	2	0	0	2	15	1	2
Omaha	211,768	10	5	2	0	0	55	8	3
Kansas:									
Topeka	55,411	16	2	2	0	1	1	0	8
Wichita	88,367	18	4	2	0	0	0	2	6
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	3	3	3	0	0	0	0	5
Maryland:									
Baltimore	796,296	153	32	48	34	5	5	7	38
Cumberland	33,741	0	0	2	1	1	1	0	1
Frederick	12,035	0	0	3	0	0	0	0	1
District of Columbia:									
Washington	497,906	69	21	24	1	3	1	0	23
Virginia:									
Lynchburg	30,395	1	1	2	0	0	1	0	3
Norfolk	(1)	18	2	2	9	0	8	1	2
Richmond	186,403	2	5	6	0	3	41	0	5
Roanoke	58,208	6	2	0	0	0	1	0	3
West Virginia:									
Charleston	49,019	11	1	0	1	2	1	2	0
Wheeling	56,208	4	1	1	0	0	6	0	1
North Carolina:									
Raleigh	30,371	24	1	2	0	0	2	0	4
Wilmington	37,061	14	0	1	0	1	0	6	4
Winston-Salem	69,031	13	1	1	0	0	0	26	1
South Carolina:									
Charleston	73,125	2	0	2	22	2	0	0	2
Columbia	41,225	7	1	2	0	--------	2	2	--------
Greenville	27,311	3	0	0	0	1	0	0	2
Georgia:									
Atlanta	(1)	11	3	6	47	7	64	2	6
Brunswick	16,809	0	0	0	3	0	0	2	0
Savannah	93,134	5	1	1	12	2	0	1	1
Florida:									
Miami	69,754	7	--------	4	2	0	1	2	2
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	0
Tampa	94,743	4	1			0	9	0	3

[1] No estimate made.

City reports for week ended January 29, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	1	1	3	0	0	0	1	3
Louisville	305,935	19	7	4	2	0	1	3	12
Tennessee:									
Memphis	174,533	13	4	5	0	1	8	0	6
Nashville	136,220	2	1	1	0	1	0	0	10
Alabama:									
Birmingham	205,670	5	3	4	12	4	15	4	8
Mobile	65,955	1	0	0	0	0	10	0	1
Montgomery	46,481	2	0	3	0	0	3	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	11	1	1	0	-------	1	11	-------
Little Rock	74,216	4	1	1	0	1	0	0	0
Louisiana.									
New Orleans	414,493	3	13	9	11	10	79	0	22
Shreveport	57,857	11	0	3	0	0	1	6	1
Oklahoma:									
Oklahoma City	(1)	-------	1	-------	-------	0	-------	-------	11
Texas:									
Dallas	194,450	4	7	17	2	3	9	2	5
Galveston	48,375	0	1	1	0	0	0	2	1
Houston	164,954	5	5	10	0	1	0	1	6
San Antonio	198,069	3	2	7	0	2	1	1	12
MOUNTAIN									
Montana:									
Billings	17,971	0	1	0	0	0	4	0	2
Great Falls	29,883	6	1	1	0	0	9	1	1
Helena	12,037	2	0	4	0	0	0	0	0
Missoula	12,668	4	0	0	0	0	0	19	0
Idaho:									
Boise	23,042	4	0	0	0	0	63	3	0
Colorado:									
Denver	280,911	35	12	9	-------	7	228	0	13
Pueblo	43,787	0	2	2	0	1	1	0	0
New Mexico:									
Albuquerque	21,000	3	0	0	0	0	20	3	1
Arizona:									
Phoenix	38,669	0	1	0	0	0	0	0	5
Utah:									
Salt Lake City	130,948	32	3	6	0	0	191	0	3
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	53	8	1	0	-------	23	48	-------
Spokane	108,897	21	5	0	0	-------	128	0	-------
Takoma	104,455	20	4	6	0	1	8	0	0
Oregon:									
Portland	282,383	25	10	6	26	1	23	2	10
California:									
Los Angeles	(1)	102	46	36	13	1	215	11	22
Sacramento	72,260	0	3	1	0	1	111	14	4
San Francisco	557,530	23	22	20	4	1	91	47	5

[1] No estimate made.

City reports for week ended January 29, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	3	0	0	0	0	0	0	0	15	35
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	1	12
Manchester	3	2	0	0	0	1	0	0	0	0	26
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	2	2
Burlington	1	0	0	0	0	2	0	0	0	9	14
Massachusetts:											
Boston	65	167	0	0	0	10	1	1	0	17	220
Fall River	3	4	0	0	0	2	0	0	0	3	34
Springfield	10	4	0	0	0	0	0	0	0	7	47
Worcester	11	8	0	0	0	2	0	0	0	0	51
Rhode Island:											
Pawtucket	1	2	0	0	0	1	0	0	0	0	--------
Providence	8	14	0	0	0	1	0	0	0	9	57
Connecticut:											
Bridgeport	9	19	0	0	0	2	0	0	0	1	29
Hartford	7	5	0	0	0	2	1	1	2	1	45
New Haven	11	6	0	0	0	3	1	0	0	0	61
MIDDLE ATLANTIC											
New York:											
Buffalo	27	25	0	0	0	9	2	0	1	9	151
New York	234	517	1	0	0	[1] 107	9	7	1	100	1,389
Rochester	13	13	0	0	0	2	0	0	0	11	65
Syracuse	16	6	0	1	0	1	1	0	0	10	57
New Jersey:											
Camden	5	4	0	0	0	4	0	0	0	0	38
Newark	26	70	0	0	0	9	0	0	0	45	106
Trenton	5	4	0	0	0	1	0	0	0	1	44
Pennsylvania:											
Philadelphia	90	103	1	0	0	30	3	1	0	31	548
Pittsburgh	45	22	0	0	0	8	1	0	0	6	180
Reading	1	4	0	0	0	0	1	0	0	3	29
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	35	1	1	0	17	0	0	0	3	130
Cleveland	40	44	2	0	0	22	1	2	0	27	197
Columbus	13	10	1	1	0	4	1	0	0	2	87
Toledo	15	11	1	0	0	7	1	0	0	23	84
Indiana:											
Fort Wayne	6	14	0	0	0	0	0	0	0	3	27
Indianapolis	10	17	12	23	0	6	0	0	0	11	77
South Bend	3	3	0	0	0	1	0	0	0	0	14
Terre Haute	3	7	1	0	0	2	0	0	0	3	19
Illinois:											
Chicago	141	139	3	0	0	55	3	0	0	56	719
Peoria	6	2	0	0	0	1	0	0	0	3	34
Springfield	2	6	0	0	0	0	1	0	0	2	19
Michigan:											
Detroit	98	123	3	1	0	33	1	0	0	60	344
Flint	9	29	1	0	0	0	0	0	0	2	25
Grand Rapids	11	31	0	0	0	2	0	0	0	3	22
Wisconsin:											
Kenosha	1	15	1	0	0	0	0	0	0	14	7
Madison	2	6	0	0	0	0	0	0	0	5	11
Milwaukee	30	40	2	0	0	4	1	1	0	57	110
Racine	7	2	0	0	0	0	0	0	0	5	4
Superior	3	6	4	0	0	0	0	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	14	1	0	0	2	1	0	0	0	20
Minneapolis	54	69	14	3	0	7	1	1	0	4	100
St. Paul	34	35	9	0	0	0	0	0	0	0	53

[1] Pulmonary tuberculosis only.

City reports for week ended January 29, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport	1	3	2	0	-------	-------	0	0	-------	0	-------
Des Moines	6	8	2	0	-------	-------	0	0	-------	0	-------
Sioux City	2	10	2	2	-------	-------	0	2	-------	1	-------
Waterloo	2	0	0	1	-------	-------	0	0	-------	2	-------
Missouri:											
Kansas City	14	34	2	9	0	8	0	1	1	5	108
St Joseph	3	5	1	0	0	0	0	0	0	1	16
St. Louis	39	45	4	0	0	11	1	0	0	29	241
North Dakota:											
Fargo	1	2	0	0	0	1	0	0	0	1	5
Grand Forks	0	0	1	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	1	2	0	0	-------	-------	0	0	-------	1	-------
Sioux Falls	2	5	0	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Lincoln	3	6	0	0	0	0	0	0	0	1	17
Omaha	5	24	9	5	0	2	0	0	0	0	48
Kansas:											
Topeka	2	2	0	20	0	0	0	0	0	20	17
Wichita	4	6	0	0	0	0	0	0	0	4	29
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	26	0	0	0	2	0	0	0	0	35
Maryland:											
Baltimore	42	28	1	0	0	16	2	2	1	82	245
Cumberland	1	3	0	0	0	0	0	0	0	2	8
Frederick	1	3	0	0	0	0	0	0	0	1	5
District of Col.:											
Washington	27	32	1	0	0	13	1	0	0	9	148
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	0	11
Norfolk	2	5	0	0	0	3	0	1	1	9	-------
Richmond	5	7	0	0	0	7	0	0	0	9	52
Roanoke	1	4	0	0	0	0	0	1	0	1	18
West Virginia:											
Charleston	1	2	0	0	0	0	1	0	0	1	19
Wheeling	1	3	0	0	0	0	0	0	1	5	13
North Carolina:											
Raleigh	0	4	0	0	0	0	0	0	0	8	14
Wilmington	1	2	0	0	0	0	0	0	0	6	12
Winston-Salem	1	5	4	2	0	0	0	0	1	26	14
South Carolina:											
Charleston	1	0	0	0	0	3	0	4	.0	1	30
Columbia	1	0	1	1	-------	-------	0	0	-------	22	-------
Greenville	1	0	0	1	0	1	0	0	0	0	10
Georgia:											
Atlanta	3	10	2	16	0	0	0	0	0	9	79
Brunswick	0	2	0	3	0	0	0	0	0	0	8
Savannah	1	0	0	9	0	2	1	0	0	0	28
Florida:											
Miami	-------	2	-------	0	0	2	-------	0	0	8	35
St. Petersburg	0	-------	0	-------	0	1	0	-------	0	-------	22
Tampa	0	3	0	1	0	2	1	2	0	0	19
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	1	0	0	0	1	0	0	0	0	14
Louisville	5	27	1	2	0	6	1	1	0	76	70
Tennessee:											
Memphis	5	24	2	3	0	6	0	0	0	13	66
Nashville	3	2	0	0	0	5	0	1	1	3	53
Alabama:											
Birmingham	3	5	4	9	0	6	1	5	1	2	76
Mobile	0	3	1	0	0	3	0	0	0	0	25
Montgomery	0	1	1	3	0	0	0	0	0	1	11

City reports for week ended January 29, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	-------	-------	0	0	-------	1	12
Little Rock	2	0	0	1	0	4	0	0	0	3	-------
Louisiana:											
New Orleans	6	9	1	0	0	15	2	0	0	1	162
Shreveport	0	2	2	0	0	1	0	0	0	0	16
Oklahoma:											
Oklahoma City	2	-------	3	-------	0	0	0	-------	0	-------	33
Texas:											
Dallas	3	8	1	5	0	1	1	0	0	0	43
Galveston	0	0	0	0	0	1	0	0	0	0	15
Houston	1	8	1	4	0	3	1	0	0	0	62
San Antonio	1	0	0	0	0	7	0	0	0	0	62
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	0	5
Great Falls	2	12	2	0	0	0	0	0	0	0	12
Helena	0	1	0	0	0	0	0	2	0	0	5
Missoula	1	24	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	1	0	0	1	0	0	0	0	0	0	3
Colorado:											
Denver	13	124	2	0	0	12	1	0	0	0	100
Pueblo	2	9	0	0	0	0	0	0	0	0	14
New Mexico:											
Albuquerque	1	4	0	0	0	3	0	0	0	0	19
Arizona:											
Phoenix	0	2	0	0	0	17	0	0	0	0	32
Utah:											
Salt Lake City	4	9	3	0	0	0	0	0	0	1	37
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	12	14	4	1	-------	-------	0	1	-------	6	-------
Spokane	4	27	4	1	-------	-------	0	0	-------	1	-------
Tacoma	3	3	3	22	0	0	1	1	0	2	27
Oregon:											
Portland	6	12	8	0	0	4	1	1	0	1	84
California:											
Los Angeles	25	50	5	0	0	30	2	1	0	11	262
Sacramento	2	1	1	1	0	3	1	0	0	1	26
San Francisco	15	30	3	2	0	15	1	5	0	5	183

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	0	0	2	0
Fall River	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	5	3	4	3	0	0	1	2	1
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0

City reports for week ended January 29, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:[1]									
Cincinnati[1]	0	1	0	0	0	0	0	0	0
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	1	2	2	1	0	0	1	0	0
Michigan:									
Detroit	0	1	3	1	0	0	0	0	1
Wisconsin:									
Milwaukee	6	3	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	0	0	1	0	0	0	0	0
Missouri:									
St. Louis	0	1	0	0	0	0	0	0	0
Nebraska:									
Omaha	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Batimore	0	0	2	0	0	0	0	0	0
West Virginia:									
Charleston	1	0	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	2	0		1	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	1	0	0	0	0	0	0
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	1	0	0	0	0	4	0	0	0
Louisiana:									
New Orleans	0	0	0	0	2	2	0	0	0
Shreveport	0	1	0	0	0	0	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	1	0	0	0	0
MOUNTAIN									
Montana:									
Helena	1	2	0	0	0	0	0	0	0
Missoula	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	3		0		0		0	0	
Tacoma	2	2	0	0	0	0	0	0	0
California:									
Los Angeles	1	1	0	1	1	1	1	1	0
Sacramento	1	0	0	0	0	0	0	0	0
San Francisco	0	0	0	1	0	0	0	0	0

[1] Rabies (human): 1 case at Cincinnati, Ohio, and 1 case and 1 death at Cleveland, Ohio.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended January 29, 1927, compared with those for a like period ended January 30, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had

estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 26, 1926, to January 29, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	132	177	170	[2] 199	146	[3] 187	142	176	142	178
New England	141	158	139	158	144	174	132	151	118	163
Middle Atlantic	126	171	182	183	151	177	138	192	130	194
East North Central	132	193	151	223	135	189	131	170	138	175
West North Central	160	165	288	189	258	159	210	147	250	127
South Atlantic	129	175	177	[2] 232	140	216	151	161	115	199
East South Central	110	187	52	138	67	250	72	153	41	102
West South Central	150	224	189	256	120	247	155	172	142	206
Mountain	111	137	182	126	128	[3] 122	155	117	264	198
Pacific	127	156	96	230	80	194	139	233	166	168

MEASLES CASE RATES

	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	613	222	1,147	[2] 384	974	[3] 329	1,336	415	1,385	417
New England	2,406	184	3,087	253	2,861	195	2,566	548	2,745	323
Middle Atlantic	558	22	997	31	846	38	1,090	49	1,187	46
East North Central	753	260	1,763	416	1,303	380	2,071	516	2,091	500
West North Central	61	60	151	260	129	193	153	278	280	298
South Atlantic	470	180	1,278	[2] 214	1,345	203	2,457	303	2,261	257
East South Central	105	78	52	107	238	97	284	204	393	188
West South Central	0	13	0	189	17	306	13	453	26	382
Mountain	83	3,541	55	5,241	91	[3] 3,334	118	5,088	100	4,459
Pacific	47	701	64	1,521	51	1,482	64	1,346	72	1,508

SCARLET FEVER CASE RATES

	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	225	268	269	[2] 319	286	[3] 367	292	383	287	386
New England	304	257	295	490	380	478	300	536	377	539
Middle Atlantic	168	234	210	286	238	339	237	369	235	379
East North Central	249	245	334	283	322	344	325	330	300	342
West North Central	509	385	583	451	557	558	678	518	666	488
South Atlantic	140	240	156	[2] 243	184	259	184	281	153	254
East South Central	180	176	119	234	140	214	202	336	109	321
West South Central	119	151	112	155	90	143	69	197	69	113
Mountain	250	892	237	953	319	[3] 1,161	374	1,349	255	1,609
Pacific	210	253	241	340	268	377	254	319	332	327

SMALLPOX CASE RATES

	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	24	14	33	[2] 23	47	[3] 22	35	20	40	26
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	1	1	0	0	2	1	0	1	1	0
East North Central	23	7	48	32	37	21	33	17	43	17
West North Central	18	40	63	58	52	69	34	60	54	79
South Atlantic	25	41	43	[2] 29	67	51	56	34	58	60
East South Central	74	47	47	41	57	87	47	25	21	87
West South Central	22	22	52	42	146	25	99	69	125	88
Mountain	37	9	36	0	18	[3] 6	27	0	13	9
Pacific	152	22	119	60	264	37	158	63	204	77

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Boise, Idaho, not included.

Summary of weekly reports from cities, December 26, 1926, to January 29, 1927.—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925–26 [1]—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 9, 1927	Jan 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan 22, 1927	Jan. 30, 1926	Jan. 29, 1927
101 cities	10	12	13	[2] 8	11	[3] 9	9	7	8	7
New England	7	24	31	9	2	21	9	2	9	5
Middle Atlantic	7	7	14	6	16	8	10	5	9	4
East North Central	6	5	11	5	8	1	3	6	4	2
West North Central	6	4	2	8	4	6	4	4	2	8
South Atlantic	12	34	9	[2] 8	7	16	7	7	9	18
East South Central	32	21	16	25	16	15	5	10	10	36
West South Central	48	17	21	25	13	17	47	4	17	0
Mountain	9	27	9	9	9	[3] 9	0	27	18	18
Pacific	8	16	11	8	13	21	16	21	11	21

INFLUENZA DEATH RATES

	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 9, 1927	Jan 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan 22, 1927	Jan. 30, 1926	Jan. 29, 1927
95 cities	15	17	21	[2] 20	23	[4] 21	20	21	29	25
New England	12	21	9	16	14	14	7	5	17	9
Middle Atlantic	10	21	18	18	16	20	14	20	18	22
East North Central	8	15	12	17	11	16	8	25	12	21
West North Central	15	8	8	15	19	10	11	4	13	4
South Atlantic	19	17	15	[2] 18	23	24	40	20	36	50
East South Central	32	26	83	46	88	36	57	15	72	31
West South Central	44	14	44	43	75	43	88	43	141	73
Mountain	28	46	46	63	64	[3] 103	18	54	73	72
Pacific	40	0	57	10	46	[5] 15	39	31	78	14

PNEUMONIA DEATH RATES

	Jan. 2, 1926	Jan. 1, 1927	Jan. 9, 1926	Jan. 9, 1927	Jan 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan 22, 1927	Jan. 30, 1926	Jan. 29, 1927
95 cities	186	163	220	[2] 196	211	[4] 180	199	183	201	159
New England	213	173	245	181	208	190	210	207	144	158
Middle Atlantic	188	179	229	209	236	205	228	197	218	174
East North Central	145	134	177	170	153	152	139	138	166	132
West North Central	127	118	141	116	127	125	82	116	110	127
South Atlantic	267	183	291	[2] 237	278	193	289	283	286	193
East South Central	263	192	331	204	284	199	228	245	207	204
West South Central	276	151	313	241	331	181	291	202	415	202
Mountain	268	200	128	369	328	[3] 206	273	216	164	171
Pacific	138	199	219	210	166	[5] 178	184	134	173	107

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926, and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Boise, Idaho, not included.
[4] Boise, Idaho, and Tacoma, Wash., not included.
[5] Tacoma, Wash., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,600
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Reports for weeks ended January 15 and January 22, 1927.—The following reports for the weeks ended January 15 and January 22, 1927, respectively, were transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

WEEK ENDED JANUARY 15, 1927

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	1	0	0	0	0	0
British India:						
Karachi	----	0	----	0	1	0
Bombay	----	0	----	1	21	15
Madras	----	0	----	0	7	1
Calcutta	----	0	----	65	84	87
Rangoon	----	3	----	0	6	0
Negapatam	----	0	----	5	5	1
Straits Settlements:						
Singapore	0	0	0	0	2	3
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Padang	0	0	0	0	2	0
Cheribon	0	0	0	0	0	0
Siam: Bangkok	0	0	5	0	3	7
French Indo-China:						
Haiphong	0	0	----	3	0	0
Turane	0	0	1	1	0	0
U. S. S. R.: Vladivostok	0	0	0	0	16	0
Manchuria:						
Changchun	0	0	0	0	1	0
Mukden	0	0	0	0	1	0
Egypt: Alexandria	0	0	0	0	1	0
Réunion: Saint-Denis	3	3	0	0	0	0
Mauritius: Port Louis	3	2	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Samarinda, Balikpapan, Palembang, Belawan-Deli, Pontianak, Semarang, Tarakan, Menado, Banjermasin, Macassar.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Saigon and Cholon.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Hongkong.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow.

Kwantung.—Port Arthur, Dairen.

Japan.—Yokohoma, Osaka, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira. Lourenco, Marques
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from:

Madagascar.—Tamatave, Majunga.

Belated information

Week ended January 8—

Reunion.—St. Denis, plague, 5 cases; 5 deaths.

WEEK ENDED JANUARY 22, 1927

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	10	3	0	0	0	0
British India:						
Karachi	----	0	----	0	2	0
Tuticorin	----	0	----	0	6	0
Madras	----	0	----	0	77	1
Calcutta	----	0	----	58	101	82
Rangoon	----	7	----	1	4	4
Negapatam	----	0	----	5	0	0
Vizagapatam	----	0	----	0	3	0
Dutch East Indies:						
Surabaya	1	1	0	0	3	1
Padang	0	0	0	0	5	0
Macassar	1	1	0	0	0	0
Siam: Bangkok	0	0	0	1	2	2
China: Shanghai	0	0	0	0	1	1
U.S.S.R.: Vladivostok	0	0	0	0	11	0
Japan: Osaka	0	0	1	0	0	0
Réunion: Saint-Denis	4	4	0	0	0	0
Mauritius: Port Louis	1	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire
British India.—Chittagong, Cochin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Sabang, Samarinda, Balikpapan, Palembang, Belawan-Deli, Pontianak, Semarang, Tarakan, Menado, Banjermasin, Cheribon.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon, Haiphong, Turane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy.
Hongkong.
Macao.
Formosa.—Keelung.
Chosen.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.
Kwantung.—Port Arthur, Dairen.
Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Freemantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reports had not been received in time for distribution from—

Madagascar.—Tamatave, Majunga.
British India.—Bombay.

Belated information

Week ended January 1—

French India.—Pondicherry, smallpox, one case, one death.

Week ended January 8—

French India.—Pondicherry smallpox, one case, one death.

Other epidemiological information received by the Singapore Bureau—

Hongkong.—First case of smallpox occurred on January 25.
Padang.—Steamship *Talma* arrived on January 14 from Madras infected with smallpox.
Singapore.—Steamship *Tairea* arrived on January 19 from Calcutta infected with smallpox.

INFLUENZA IN FOREIGN COUNTRIES

The health section of the secretariat of the League of Nations has published the following information relative to the prevalence of influenza in foreign countries. The data were obtained from the health administrations of the several countries. Earlier reports will be found in the Public Health Reports of February 4, 1927, page 283, and February 11, 1927, page 367.

Bulgaria.—(January 25.) The number of influenza cases reported in Bulgaria is increasing but the form generally remains mild. In groups of population for which statistics are available, 25 per cent are reported suffering from influenza since January 7 at Burgas. There were seven deaths in this town due to complications of influenza from January 1 to 19. An increase of influenza is reported among the pupils and soldiers at Satra-Zagora. Fifteen per cent of the pupils at Sofia have been ill from influenza since their return from vacations. The number of cases is increasing at Nicopoli.

Czechoslovakia.—(January 25.) The influenza epidemic appeared in Bohemia only during the second week of January. Reports for the period from January 1 to 15 have been received from 101 municipalities of Bohemia, in which 6,621 cases and 4 deaths were reported. Among these cases 1,699 were among children under 14 years of age. The type of the cases is given as follows: 68 cases of simple fever, 6,507 cases of catarrhal type, 27 broncho-pneumonia, 34 gastro-intestinal, 12 nervous.

Of the above cases 2,363 were reported at Prague and the remainder in smaller towns and villages.

The Central Social Insurance Fund at Prague states that, during the week ended January 22, there were among its members in the town of Prague alone 3,234 cases of simple catarrhal influenza, 83 cases with pulmonary complications, of which 2 were fatal, 4 cases of gastro-intestinal, and 2 of cerebral type.

Denmark.—(January 26.) There were 37,241 influenza cases reported during the week ended January 15, as against 16,150 cases during the previous week. There were 6,725 new cases at Copenhagen during the week ended January 22, as compared with 5,455 during the preceding week.

England and Wales.—(January 25.) Official reports for the week ended January 22 indicate that a widespread prevalence of what is variously termed influenza, influenzal cold, and catarrhal fever continues. The cases are mostly of mild type, the febrile period short and catarrhal symptoms prevailing. The recovery is

usually rapid and the sequelæ infrequent. The outbreak is occurring principally in the southern and eastern part of the country. The northwestern districts are still comparatively free. Provisional returns for the said week are: Deaths from influenza in 105 large towns including London, 470; in London, 197. Pneumonia notifications numbered 1,886 in the whole country and 377 in London.

France.—Forty-one deaths from influenza were reported at Paris between January 11 and 20, as against 75 deaths during the previous 10 days. The number of deaths from all causes decreased from 1,593 during the first 10 days of January to 1,443 deaths during the second 10-day period, which is a fairly normal figure for the season.

Three deaths from influenza were reported at Lille during the week ended January 8, as against six during the previous week.

It is reported that the epidemic is decreasing practically everywhere in France.

Germany.—Statistics of causes of death for large towns show a moderate increase of the general mortality and of the deaths from respiratory diseases during the week ended January 1. The number of deaths attributed to influenza increased from 37 during the previous week to 83.

Hungary.—The number of mild influenza cases is very high at Budapest as well as in the remainder of the country. The disease is more prevalent in the western than in the eastern counties. Complications are generally rare and fatal cases few. There have been 2,079 cases, of which 33 were qualified as serious, and 1 death in the army (35,000 men). Notification of influenza cases has been made compulsory. At Budapest, 732 cases, of which 57 were with complications, and 14 deaths were reported during the week ended January 22. There were 10 deaths from influenza during the previous week.

India.—The following numbers of influenza cases and deaths were reported during the week ending January 1: 27 cases and 10 deaths in Bengal, 2 deaths in Bihar and Orissa, 73 cases and 21 deaths in the Punjab, and 188 cases and 6 deaths in the Province of Assam. During the week ended January 8, there were 5 deaths from influenza in Bengal, 3 in Burma, and 1 in the Punjab. Seven deaths from influenza were reported at Calcutta during the week ended January 22.

Ireland.—No epidemic has so far been reported either in the Irish Free State or in Northern Ireland. There were two deaths from influenza at Dublin and five at Belfast during the week ended January 15.

Italy.—(January 19.) Limited sporadic manifestations of benign influenza, not constituting epidemic centers, have been reported during the last two days from a few Provinces. These outbreaks have not in any way modified the health conditions of the Kingdom, which have remained perfectly normal, the mortality not exceeding its usual height during the winter season.

Japan.—The health administration informs the Singapore bureau that 142 deaths from influenza were reported in the nine principal maritime towns of Japan (Hakodate, Kobe, Moji, Nagasaki, Niigata, Osaka, Shimonoseki, Tsuruga, and Yokohama) from January 1 to 10.

Lithuania.—(January 25.) The influenza epidemic is not extending markedly; 386 cases and 2 deaths were reported from January 1 to 21.

Netherlands.—(January 21.) Influenza remains very prevalent but it continues to be of benign type, although complications (pneumonia) are not infrequent among persons of advanced age. The local health services of Amsterdam, The Hague, and Rotterdam reported on January 17 that the epidemic showed a tendency to diminish. At Amsterdam there were 35 deaths attributed to influenza during the first week of January, as compared with 13 during the previous week. The situation appears to be unchanged at Utrecht, where 20 per cent of the personnel of the public services are stated to be sick. At Arnhem (80,000 inhabitants) there are from 1,300 to 1,400 sick. A number of

smaller towns and villages are seriously affected. No special measures have been taken, excepting that the schools are closed in many municipalities.

Norway.—(January 27.) Influenza has not increased sensibly nor has the type become aggravated. It appears to be decreasing at Oslo.

Nine deaths from influenza were reported at Oslo and 4 at Bergen during the 2 weeks ended January 15, as against 0 and 3, respectively, during the 2 preceding weeks.

Russia (U. S. S. R.).—Three hundred and ten influenza cases, of which 3 were fatal, were reported at Leningrad during the week ended December 11. There were 183 cases and 2 deaths attributed to influenza during the previous week.

Scotland.—The registrar-general of Scotland states (January 24) that there were 18 deaths attributed to influenza in the 16 principal towns of Scotland during the week ended January 22, as compared with 13 during the previous week. The general death rate remains normal for the season (15.5 per 1,000 inhabitants).

Spain.—(January 23.) Telegrams received from the various Provinces show a marked diminution of the influenza epidemic during the week ended January 23 in all the infected Provinces. The character of the disease remains benign, and children and old people particularly are affected. The mortality has been diminishing at Madrid, Valencia, San Sebastian, Bilbao, and Tarragona during the said week and now approaches the normal for the winter season.

Switzerland.—One hundred and fifty-nine deaths were attributed to influenza in Swiss towns of more than 10,000 inhabitants during the week ended January 8, as compared with 80 during the previous week. The largest number of deaths, 60, was returned from Geneva, where there had been 30 deaths from influenza during the previous week.

The number of deaths occurring in each town is specified below, as well as the distribution of the deaths by age and sex:

Deaths from influenza in Swiss towns during the week ended January 8, 1927

Zurich	10	Lucerne	5	Coire	1
Basel	38	Chaux-de-Fonds	5	Herisau	1
Geneva	60	Bienne	3	Olten	1
Berne	3	Neuchatel	4	Bellinzona	2
Lausanne	14	Friburg	4	Aarau	1
St. Gall	1	Baden	1		
Winterthur	1	Montreux	4	Total	159

Deaths from influenza by age and sex in Swiss towns during the week ended January 8, 1927

Age groups	Male	Female	Total	Age groups	Male	Female	Total
0 year	4	1	5	50-59	9	8	17
1-4	1	3	4	60-69	12	15	27
5-14	-	1	1	70-79	15	37	52
15-19	2	-	2	80 and over	8	14	22
20-29	2	2	4				
30-39	3	8	11		62	97	159
40-49	6	8	14				

Deaths from all causes in Swiss towns numbered 487 and at Geneva 108 during the week ended January 8, as against 274 and 27, respectively, during the corresponding week of 1926, in both cases exclusive of deaths of nonresidents.

Influenza cases reported to the health services in the whole of Switzerland numbered 22,726 during the week ended January 15 as compared with 17,008 during the previous week. The table below shows that the epidemic is decreas-

ing at Geneva, Basel, and Soleure, but gaining in the cantons infected more recently.

Influenza cases reported in certain cantons of Switzerland, December 26, 1926–January 15, 1927

Canton	Dec. 26, 1926–Jan. 1, 1927	Jan. 2–8, 1927	Jan. 9–15, 1927
Berne	561	961	1,498
Basel	5,126	3,821	1,591
Geneva	2,533	3,149	1,973
Zurich	256	2,472	5,828
Soleure	458	2,292	1,409
Lucerne	54	1,135	1,521
Argovie	37	881	2,662
Thurgovie	58	517	763
St. Gall	4	428	1,904
Valais	0	19	1,095

ALGERIA

Plague—Bona—January 19, 1927.—Under date of January 19, 1927, two fatal cases of plague were reported at Bona, Algeria.

BRAZIL

Malaria mortality—Para.—Mortality from malaria has been reported at Para, Brazil, as follows: November 27–December 25, 1926—deaths, 16; December 27, 1926–January 16, 1927—deaths, 19. Population, 236,402.

Prevailing diseases.—During the periods under reports gastroenteritis, leprosy, malarial fevers, and tuberculosis were reported to be the prevailing diseases at Para.

Smallpox—Rio de Janeiro—January 1, 1926–January 1, 1927.—During the period January 1, 1926, to January 1, 1927, 4,083 cases of smallpox with 2,180 deaths were reported at Rio de Janeiro, Brazil.

BRITISH EAST AFRICA

Influenza mortality—Tanganyika Territory—November 28–December 4, 1926.—During the week ended December 4, 1926, 209 deaths from influenza were reported in Tanganyika Territory, British East Africa.

CANADA

Communicable diseases—Week ended January 29, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in six Provinces of Canada for the week ended January 29, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Total
Cerebrospinal fever			3	2		1	6
Influenza	53				1		54
Lethargic encephalitis	1			1			2
Smallpox				37	1	6	44
Typhoid fever	1		16	20	12	3	52

Communicable diseases—Sydney, Nova Scotia—Year 1926.—During the year 1926, communicable diseases were reported at Sydney, Nova Scotia, Canada, as follows:

Disease	Cases	Disease	Cases
Chicken pox	6	Syphilis	22
Diphtheria	9	Tuberculosis	24
Gonnorhea	13	Typhoid fever	6
Scarlet fever	32	Whooping cough	14

Population, estimated: 21,874. Total mortality from all causes—365.

CUBA

Communicable diseases—Habana—January, 1927.—During the month of January, 1927, communicable diseases were reported at Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment Jan. 31, 1927
Beriberi			2
Chicken pox	19		10
Diphtheria	18	1	7
Leprosy			11
Malaria [1]	92	4	57
Measles	27	1	12
Scarlet fever	6		6
Paratyphoid fever	2		2
Typhoid fever [1]	40	7	21

[1] Many of these cases from the interior.

Malaria—Camaguey and Oriente Provinces—July 1–December 31, 1926.—The following table shows the number of cases of malaria reported in the Provinces of Camaguey and Oriente, Cuba, during the last six months of the year 1926.

Inspectors have been appointed in each Province, and special measures taken in the attempt to cure and prevent the disease.

Province	July	August	September	October	November	December
Camaguey	97	160	194	321	742	1,596
Oriente	481	327	171	335	559	1,644
Total	578	487	365	656	1,301	3,240

ECUADOR

Plague—Guayaquil—January 1–15, 1927.—During the period January 1 to 15, 1927, 5 cases of plague with 3 deaths were reported at Guayaquil, Ecuador.

Plague-infected rats.—During the same period, 10,261 rats were reported taken and 53 rats found plague infected.

EGYPT

Plague—January 1-7, 1927.—During the week ended January 7, 1927, 12 cases of plague were reported in Egypt, of which 10 cases occurred in the district of Marsa Matrah, and one each in the districts of Tanta and Zagazig.[1]

MAURITIUS

Plague—October, 1926.—During the month of October, 1926, nine cases of plague with nine deaths were reported in the island of Mauritius. Of these, two cases occurred in Plaines Wilhems District and seven cases in the town of Port Louis.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State—December 19-25, 1926.—During the week ended December 25, 1925, plague was reported in the Union of South Africa as follows: *Cape Province*—Hanover District—one fatal case, native; *Orange Free State*—one case, native, Hoopstad District; Vredefort District, 10 cases with 5 deaths, native.

Further relative to outbreak in Vredefort District, Orange Free State.—The outbreak, which resulted in 10 cases, with 5 deaths, occurred on Diamand Farm, all the cases being in natives and close contacts, and all bubonic in type. The first case occurred in a herd boy December 1, 1926. The outbreak was reported December 17, 1926.

VIRGIN ISLANDS

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	3	
Chicken pox	2	
Gonorrhea	2	One imported.
Syphilis	3	Primary, 2; secondary, 1.
Tuberculosis	1	Chronic pulmonary.
Uncinariasis	1	Necator americanus.
St. Croix:		
Chancroid	1	
Filariasis	2	Bancrofti.
Leprosy	1	
Tuberculosis	1	Chronic pulmonary.

[1] Public Health Reports, Feb. 11, 1927, p. 447

YUGOSLAVIA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	15	1	Rabies	2	2
Cerebrospinal meningitis	11	4	Scarlet fever	608	98
Diphtheria	221	52	Tetanus	10	4
Dysentery	68	11	Typhoid fever	523	73
Glanders	5	5	Typhus fever	21	2
Leprosy	1		Whooping cough	322	7
Measles	780	2			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended February 18, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Nov. 13-27, 1926: Cases, 3,646; deaths, 2,234.
Madras	Dec. 26-Jan. 1	2	2	
Rangoon	Dec. 12-25	4	2	
Siam				Dec. 5-11, 1926: Cases, 9; deaths, 8. Apr. 1-Dec. 13, 1926: Cases, 7,801; deaths, 5,138.
Bangkok	Dec. 5-11	2	1	District.

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Bona	Jan. 19	2	2	
British East Africa:				
Tanganyika Territory	Dec. 12-18		6	
Ecuador:				
Guayaquil	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt				Jan. 1-7, 1927: Cases, 12. (P. H. R., Feb. 11, 1927. p. 452.)
India				Nov. 14-27, 1926: Cases, 2,608; deaths, 1,577.
Rangoon	Dec. 12-25	4	3	
Java:				
Batavia	Dec. 19-25	15	16	Batavia Province.
Do	Dec. 26-Jan. 1	13	13	Do.
Surabaya	Dec. 5-18	5	5	
Mauritius				Oct. 1-31, 1926: Cases, 9; deaths, 9.
Plaines Wilhems	October, 1926	2	2	
Port Louis	do	7	7	
Siam				Dec. 5-11, 1925: Cases, 4; deaths, 3. Apr 1-Dec. 11, 1926: Cases, 24; deaths, 17.
Syria:				
Beirut	Dec. 14-20	1		
Union of South Africa:				
Cape Province—				
Hanover District	Dec. 19-25	1	1	Native.
Orange Free State—				
Hoopstad District	do	1		Do.
Vredefort District	do	10	5	Native, on Diamand Farm; first case occurred Dec. 1, 1926; reported Dec. 17.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended February 18, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Pernambuco	Dec. 11-25	1	1	
Rio de Janeiro				Jan. 1, 1926-Jan. 1, 1927: Cases, 4,083; deaths, 2,180.
Canada				Jan. 23-29, 1927. Cases, 44.
Alberta—				
Calgary	Jan. 16-29	5		
Manitoba	Jan. 23-29	1		
Winnipeg	Jan. 30-Feb. 5	2		
Ontario	Jan. 23-29	37		
Ottawa	do	3		
Toronto	Jan. 16-22	10		
Saskatchewan	Jan. 23-29	6		
China:				
Chungking	Dec. 12-25			Present.
Manchuria—				
Harbin	Dec. 26-31	2		
Shanghai	Dec. 12-18		1	
France:				
Paris	Jan 1-10	1		
Great Britain:				
England and Wales—				
Bradford	Jan. 9-22	2		
Newcastle on Tyne	Jan. 9-15	6		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Jan. 2-8	20		
India				Nov. 14-27, 1926: Cases, 3,915; deaths, 871.
Bombay	Dec. 19-25	7	5	
Madras	Dec. 26-Jan. 1	9		
Rangoon	Dec. 19-25	1		
Iraq:				
Baghdad	Nov. 21-27	3	1	
Italy:				
Genoa	Jan. 1-10	2		
Mexico:				
Torreon	Jan. 16-22		1	
Peru:				
Laredo	Dec 1			Severe outbreak reported. Vicinity of Trujillo.
Portugal:				
Lisbon	Jan. 9-15	2		
Senegal:				
Dakar	do	1		
Siam				Dec. 5-11, 1926: Cases, 8; deaths, 4. Apr. 1-Dec. 11, 1926: Cases, 705: deaths, 265.
Bangkok	Dec. 5-11	4	1	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Chile:				
Valparaiso	Jan. 2-8	3		
Egypt:				
Cairo	Oct. 29-Nov. 4	1	1	
Ireland (Irish Free State):				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Mexico:				
Durango	January, 1927		1	
Mexico City	Jan. 9-15	12		Including municipalities in Federal District.
Palestine				Dec. 28, 1926-Jan. 10, 1927: Cases, 10.
Acre	Dec. 28-Jan. 3	1		
Haifa	Dec. 28-Jan. 10	4		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	do	3		
Safad	do	1		
Yugoslavia				Dec. 1-31, 1926: Cases, 21; deaths, 2.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 11, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14-20			Present.
Tsingtao	Nov 14-Dec. 11			Do.
Chosen	Sept. 1-30	231	143	
French Settlements in India	Aug 29-Oct. 30	128	94	
India	Oct. 10-Nov. 13			Cases, 7,093; deaths, 4,170.
Calcutta	Oct 31-Dec. 18	257	198	
Rangoon	Nov. 21-Dec. 11	4	3	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: One case.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-31	1		
Siam	Oct. 31-Nov. 6			Case, 1.
Do	Apr. 1-Dec. 18			Cases, 7,806; deaths, 5,142.
Bangkok	Oct. 31-Dec. 18	8	2	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Dec. 4	3	2	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 26	1		
Bona	Jan. 11	1		
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
British East Africa:				
Tanganyika Territory	Nov. 21-27	6	6	
Uganda	Sept. 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,616; found infected, 184.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Tanta District	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piraeus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Nov. 13			Cases, 7,985; deaths, 4,660.
Bombay	Nov. 21-27	1	1	
Madras	Oct. 31-Dec. 4	415	212	
Rangoon	Nov. 14-Dec. 4	7	6	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 11, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22: deaths, 15.
Java:				
Batavia	Nov. 7-Dec. 18	63	61	Province.
Surabaya	Oct. 24-Dec. 4	9	9	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Nov. 15	8	8	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Nov. 15	38	26	
Tamatave	Oct. 16-31	3	1	
Tananarive	Oct. 16-Nov. 15			Cases, 180; deaths, 167.
Tananarive Town	Oct. 16-Nov. 15	26	25	
Nigeria	Aug. 1-Sept. 30	492	441	
Peru	Nov. 1-30			Cases, 24; deaths. 4.
Departments—				
Cajamarca	do			Present.
Ica—				
Chincha	do	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Lima	do			Cases, 30; deaths, 4. Present in Cajatambo and Chancay Provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Aug. 31	19		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21.
Syria:				
Beirut	Nov. 11-Dec. 20	3		
Tunisia:				
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-20	1		Native. On farm.
Middleburg District	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville District	Dec. 5-18	2	1	
Hoopstad District	Nov. 7-13	1	1	Native.
Do	Dec. 5-11	1	1	Do.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20			Cases, 477.
Algiers	Dec. 11-31	4		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 11	57	3	
Rio de Janeiro	Nov. 14-Dec. 25	140	64	
Sao Paulo	Aug. 23-Oct. 24	12	9	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada	Dec. 5–Jan. 1			Cases, 155.
Do	Jan. 2–22	137		
Alberta	Dec. 5–Jan. 1	132		
Do	Jan. 2–22	28		
Calgary	Nov. 28–Dec. 25	12		
Do	Jan. 2–17	7		
Edmonton	Dec. 1–31	4		
Manitoba	Dec. 5–Jan. 1	9		
Do	Jan. 2–22	7		
Winnipeg	Dec. 19–25	1		
Do	Jan. 2–22	3		
Ontario	Dec. 5–Jan. 1	96		
Do	Jan. 2–22	87		
Kingston	Jan. 1–7	1		
Ottawa	Dec. 12–31	5		
Do	Jan. 9–15	1		
Toronto	Dec. 14–25	14		
Do	Jan. 1–15	25	1	
Saskatchewan	Dec. 5–Jan. 1	18		
Do	Jan. 2–22	15		
Regina	Jan. 16–22	1		
China:				
Chungking	Nov. 7–Dec. 11			Present.
Foochow	Nov. 7–Dec. 25			Do.
Hankow	Nov. 6–30			Do.
Manchuria—				
Harbin	Dec. 16–22	1		
Mukden	Dec. 5–11	1		
Swatow	Nov. 21–27			Do.
Nanking	Dec. 12–25			Do.
Chosen	Aug. 1–Sept. 30	42	14	
Seoul	Nov. 1–30	2		
Egypt:				
Cairo	June 11–Aug. 26	27	4	
Estonia	Oct. 1–30	2		
France	Sept. 1–Oct. 31	165		
Paris	Dec. 1–31	10	3	
French Settlements in India	Aug. 29–Nov. 30	83	83	
Germany:				
Stuttgart	Nov. 28–Dec. 4	7		
Gold Coast	Aug. 1–31	41	5	
Great Britain:				
England and Wales	Nov. 14–Jan. 1			Cases, 2,262.
Do	Jan. 2–8			Cases, 412.
Newcastle-on-Tyne	Dec. 5–11	2		
Do	Jan. 2–8	1		
Sheffield	Nov. 28–Jan. 1	60		
Greece	Nov. 1–30	20		
Athens	Dec. 1–31	14	2	
Guatemala:				
Guatemala City	Nov. 1–Dec. 31		15	
India	Oct. 10–Nov. 13			Cases, 3,967; deaths, 988.
Bombay	Nov. 7–Dec. 18	22	16	
Calcutta	Oct. 31–Dec. 18	239	160	
Karachi	Dec. 19–25	1	1	
Madras	Nov. 21–Dec. 25	23	2	
Rangoon	Nov. 28–Dec. 11	1	1	
Indo-China	July 1–31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31–Dec. 4	4	3	
Basra	Nov. 7–13	1	1	
Italy	Aug. 29–Oct. 23	12		
Genoa	Dec. 20–31	1		
Jamaica	Nov. 26–Dec. 25	34		Reported as alastrim.
Japan:				
Kobe	Nov. 14–20	1		
Yokohama	Nov. 27–Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24–Nov. 27	10	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Jan. 8	1		Do.
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-15		2	
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-8		4	
Nigeria	Aug. 1-Sept. 30	61	3	
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-8	3		
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Siam	Apr. 1-Dec. 18			Cases, 703, deaths, 266.
Bangkok	Oct. 31-Dec. 18	21	7	
Sierra Leone				
Manowa	Dec. 1-15	1		Pendembu district.
Straits Settlements:				
Singapore	Oct. 31-Nov. 27	3		
Tunisia	Oct. 1-Nov. 20	7		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20	22		
Bulgaria	July 1-Oct 31	23	3	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug 1-Sept. 30	15		
Seoul	Nov. 1-30	1		
Egypt:				
Alexandria	Dec. 3-9		1	
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 30	15	2	
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Oct. 31	17	2	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-15	1		
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-8	4		Do.
Nigeria	Sept. 1-30	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 11, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Palestine:				
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Jaffa	Nov. 23-Dec. 20	6		
Jerusalem	Sept. 1-Oct. 30	19		
Nazareth	Nov. 16-Dec. 20	7		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Oct. 31	114	6	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Turkey:				
Constantinople	Dec. 12-25	3		
Tunisia	Oct. 1-20	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district.	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-30	9		

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27	1	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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SPECIAL ARTICLES

Sickness and Accident Record of Large Industrial Plant

British Administrative Measures for Influenza Control

UNITED STATES
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1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

VOL. 42 FEBRUARY 25, 1927 No. 8

A 10-YEAR RECORD OF ABSENCES FROM WORK ON ACCOUNT OF SICKNESS AND ACCIDENTS[1]

EXPERIENCE OF EMPLOYEES OF THE EDISON ELECTRIC ILLUMINATING CO. OF BOSTON, 1915 TO 1924, INCLUSIVE

By DEAN K. BRUNDAGE, Assistant Statistician, United States Public Health Service

Knowledge of the amount of disabling illness experienced by a sizable group of employees over a considerable period of time is seldom obtainable, because it involves a record of *all* the cases within the definition of a "recordable illness," and not simply those cases which come to the attention of the company physician or the establishment's medical department. A record of all absences for one full working day or longer on account of disability among its employees was inaugurated by the Edison Electric Illuminating Co. of Boston on January 1, 1913, and is still being maintained. In this presentation of the experience the records for the first two years, 1913 and 1914, were omitted, because the sickness rates for each of these two years were found to be considerably below the rates for later years, and thus to suggest that some of the shorter illnesses were not being reported at that time, or that the employees as a whole tended to remain at work during their minor illnesses and only gradually began to take advantage of the liberal sick-leave provisions which were put into effect at the time the sickness records were inaugurated.

AMOUNT OF ABSENCE ON ACCOUNT OF SICKNESS GREATER WHEN SICK LEAVE IS GRANTED

The granting of sick leave undoubtedly affects the frequency and duration of absences due to illness. Many employees are loath to absent themselves from work when absence involves cessation of pay, even though it may be disagreeable to work when physically indisposed. Occasionally this tendency is carried to the extreme. A factory physician in Massachusetts reports that one of his company's employees on a wage basis who was suffering from pneumonia remained at work up to the day of the crisis. On account of such a tendency the sickness rates of wage earners computed from records of

[1] From the Office of Industrial Hygiene and Sanitation in cooperation with the Office of Statistical Investigations of the United States Public Health Service.

absence are lower, usually, than the illness rates for persons whose pay is continued during sickness. An approximate measure of the extent of this tendency is afforded in Table 1 and Figure 1, and is evident from other data, as yet unpublished, in the Statistical Office of the Public Health Service.

TABLE 1.—*Frequency of absences due to disability according to their duration in working days (1922 to 1924) among employees of a company which pays wages during illness compared with a company which does not do so*

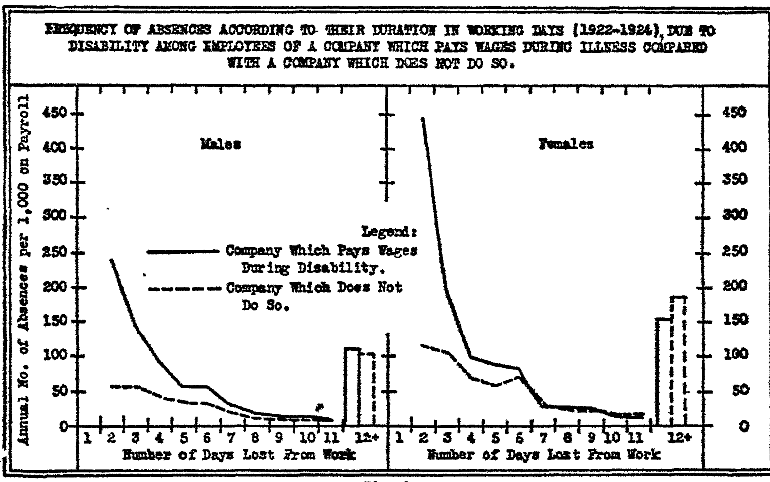
Duration of absences in working-days	Males		Females	
	Company which pays wages during disability	Company which does not pay wages during disability	Company which pays wages during disability	Company which does not pay wages during disability
All workdays	1,198	383	2,408	710
1 day lost from work	418	(1)	1,235	(1)
2 days lost from work	239	57	443	115
3 days lost from work	142	55	198	104
4 days lost from work	91	40	99	72
5 days lost from work	56	35	90	59
6 days lost from work	54	33	82	69
7 days lost from work	30	18	28	29
8 days lost from work	17	12	27	22
9 days lost from work	13	12	25	23
10 days lost from work	14	8	15	14
11 days lost from work	12	10	12	17
12 days or more lost from work	112	103	154	186
Years of life under observation	6,129	12,148	1,508	5,374

[1] Unknown

From other morbidity data [2] it appears that in a large group of people the number of one-day disabilities is normally larger than the number of two-day disabilities, two-day disabilities more numerous than three-day disabilities, etc. The duration curve, therefore, is interesting from the standpoint of the light it may shed upon the extent to which the shorter cases are reported and put into the record. In Figure 1 the curves for the company which does not pay wages during disability appear to be somewhat abnormal, for the males especially, on account of their flatness at the extreme left. One should expect more two-day than three-day sicknesses, for example. Judging roughly from the small amount of data available, the curves for the company which pays wages during disability appear to veer off a little to the other extreme. Their shorter cases, especially the one and two day absences, may be a little too numerous, relatively, to represent the normal disability curve. The true curve probably would lie somewhere between these two experiences; and from the shape of the curves, especially of the curve for the

[2] Cf. "Disabling sickness among employees of a rubber manufacturing establishment in 1918, 1919, and [illegible]," Reprint No. 804 from the Public Health Reports of Dec. 15, 1922, p. 8.

males, the suggestion is ventured that the disabilities of comparatively short duration reported in the company which pays wages during illness overstated the real amount of sickness to a smaller extent than the other company's records understated the frequency of the shorter illnesses. As the reader probably has inferred, the rates shown in Table 1 and Figure 1 for the company which pays wages during disability represent the experience of the Edison company.



FREQUENCY OF ABSENCES ACCORDING TO THEIR DURATION IN WORKING DAYS (1922-1924), DUE TO DISABILITY AMONG EMPLOYEES OF A COMPANY WHICH PAYS WAGES DURING ILLNESS COMPARED WITH A COMPANY WHICH DOES NOT DO SO.

Fig. 1.

SICK-LEAVE PROVISIONS OF THE EDISON COMPANY

The more detailed sick-leave provisions of the Edison Electric Illuminating Co. are as follows: To all employees other than those irregularly employed at irregular hours, there is payable by the departments for which they work an illness allowance at the rate of 1 day per month during the first 12 months of employment. Upon completion of the first year of service the maximum illness allowance at full pay is 2 weeks per calendar year; if disability lasts more than 14 consecutive days the account is transferred to the disablement benefit fund, and full wages are continued up to a maximum of 13 weeks. If disability still continues beyond the fifteenth week (2 weeks paid by the department and 13 weeks by the benefit fund), a certain proportion of the amount of the wages is then paid from the disablement fund, depending upon the employee's length of service with the company. The employees make no contributions to the sickness benefit fund; it is paid in toto by the company.

Disability due to injury arising out of one's employment is paid for in accordance with the terms of the workmen's compensation

act. To the amount so payable the company contributes an additional sum to make up the employee's full pay for a certain period, depending upon the duration of disability.

The only employees who lose their wages when disabled by sickness or accident for a period varying from 1 day to 15 weeks are: (*a*) Those persons who have been with the company for less than 1 year and are disabled after having used up their sick allowance of 1 day for each month on the pay roll, and (*b*) those persons who have been on the pay roll for more than 1 year and are disabled after having used up their sick allowance of 2 weeks (12 working days). Employees in this position must wait 7 days if disabled by industrial accident, and 12 days if incapacitated by sickness before they can again draw full pay through transference of the account to the benefit fund. It is apparent that relatively few employees would be found in either of these two situations, and that the amount of wages lost to employees of the company as a whole through incapacitation is relatively small.

An administrative feature of the plan, as well as a feature of service to disabled employees, is the work of the company physician who makes home calls among those who have reported themselves unable to work on account of illness. Not all of the cases are seen by the company physician, but 81 per cent of those disabilities which lasted two days or more, and 58 per cent of the disablements for one day only were visited in the three years ending December 31, 1924. A matter of importance from the standpoint of interest in the record is the fact that a physician's diagnosis was obtained for so many of the cases.

SELECTION OF EMPLOYEES IN THE INDUSTRY

Since February, 1913, each person upon entering the service of the company has received a physical examination, though no periodic examinations are made. Persons having serious defects of the heart, lungs, or kidneys, and hernias likely to cause trouble, are not accepted for employment.

Aside from this sort of selection made by the employer, there is an important selection of industry on the part of the employee. The disability data being collected by the Public Health Service in a number of different industries indicate that the strongest, most able-bodied, disease-free workers are found in the so-called heavy industries such as iron and steel manufacturing, while the less sturdy and those afflicted with more ailments apparently seek the lighter industries in which the work is of a more sedentary character. This sort of selection is suggested by the wide differences in the sickness rates, and especially in the frequency of certain diseases among the employees of different industries. Reports to the Public Health Service from a group of 27 sick-benefit associations in this country,

of cases causing disability for eight consecutive days or longer show higher than average sickness rates for the men employed by public utilities.[3] Comparatively heavy disability rates for nearly all ailments, and especially for such diseases as pulmonary tuberculosis, grippe (nonepidemic), neuralgia and neuritis, and diseases of the digestive system suggest that in the public utilities a somewhat less healthy type of worker may be found than in certain other industries.

In view of this possibility, and considering that liberal sick leave probably attracts persons most in need of it, it seems reasonable to expect more disabling illness among employees of the public utility under study than occurs in certain industries or occupations which, on account of the nature of the work or other circumstances, appeal only to the more sturdy and healthy persons in the working population. From the data available it was not possible to study this factor, but its importance as shown in other sickness data now being analyzed by the Public Health Service warranted mention of an influence which probably should be considered in all studies of industrial morbidity.

AGE DISTRIBUTION OF EMPLOYEES OF THE PUBLIC UTILITY IN BOSTON

Age is an important factor in the frequency of disabling sickness, and especially in its duration, as shown in Table 8 and Figure 5. A cross section of the age distribution of males and of females on the pay roll of the company as of July 15, 1923, is given in Table 2 and Figure 2.

The per cent of total employees in each age group was also ascertained as of July 15, 1916. A slight increase occurred in the proportion of men who were 45 or more years old (20.3 per cent in 1923 compared with 18.7 in 1916). In age group 35 to 44, and also 25 to 34, there was a smaller proportion in 1923 among both the men and the women, but the widest difference occurred among those who were under 25 years of age. This group constituted 23.4 per cent of the men in 1923 compared with 15.2 per cent in 1916, and nearly one-half of all the women compared with one-fourth of them in the earlier period.

The youth of the personnel in 1923 is striking: One-third of all the women were in age group 20 to 24, and there were more men on the pay roll at these ages than in any other five-year age group. Only 3 per cent of the female employees and 13 per cent of the males were 50 years of age or over. Eighty per cent of the men were between the ages of 15 and 45, while this percentage of the women was restricted to the age group 15 to 35.

[3] "A Study of Sickness Among 133,000 Industrial Employees," Reprint No. 1060 from the Public Health Reports of Jan. 22, 1926, p. 12.

TABLE 2.—*Age distribution of males and of females on the pay roll of the Edison Electric Illuminating Co. of Boston as of July 15, 1923*

Age group	Number		Per cent	
	Males	Females	Males	Females
Under 20	141	75	6.3	13.7
20 to 24	379	183	17.1	33.5
25 to 29	376	129	16.9	23.6
30 to 34	334	52	15.1	9.5
35 to 39	318	31	14.3	5.7
40 to 44	223	40	10.0	7.3
45 to 49	170	20	7.7	3.7
50 to 54	141	8	6.3	1.5
55 to 59	65	7	2.9	1.3
60 to 64	45	0	2.0	
65 and over	31	1	1.4	.2
Total	2,223	546	100.0	100.0

At the beginning of the 10-year period, i. e., January, 1915, there were approximately 1,800 men and 150 women on the pay roll. The growth in numbers was fairly steady during the 10 years, except for

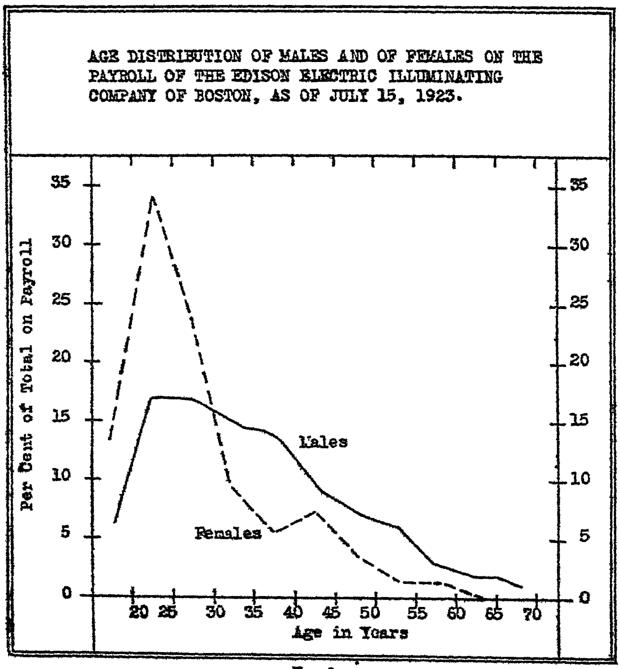


Fig. 2

an intermediary period of decline from April, 1917, to December, 1918. At the end of the 10 years (December, 1924) there were approximately 2,400 men and 600 women in the employ of the company. About 90 per cent was American born.

AVERAGE FREQUENCY OF DISABILITY AND AMOUNT OF TIME LOST IN THE 10 YEARS

Estimates of the average annual time loss to wage earners in the United States on account of sickness usually vary from 6 to 9 days per person.[4] The estimates seldom specify whether the loss is measured in working days or calendar days, nor to which sex it refers. In the present study time losses are expressed in terms of the number of calendar days intervening from the date absence began to the date of return to work.[5] The 10-year record of absences among employees of the Edison company of Boston shows an average annual loss from sickness (exclusive of accidents) of 6.9 calendar days per male on the pay roll and of 12.9 calendar days per female on the pay roll. When accidents, both of industrial and nonindustrial origin are included, the time loss was increased to 8.9 calendar days annually per male, and 14.0 calendar days per female employee.

A comparison of general interest, on account of the organized effort in recent years to prevent industrial accidents, is the relative frequency of absence and time lost from sickness, industrial accidents, and nonindustrial injuries. Over the 10-year period there were 12 times as many absences and 4 times as many days of disability from sickness as from industrial accidents among the men on the pay roll. The records for the women show 171 times as many absences and 42 times as many days of disability from sickness as from industrial accidents. The small number of industrial accidents among the women does not mean that women are so much more careful than men (witness the nonindustrial disability rate by sex), but was due to the fact that about 75 per cent of the women are clerks, and therefore not exposed to any industrial accident hazard.

Comparing industrial and nonindustrial accidents among the men, we find that disabling industrial injuries were 40 per cent more numerous and caused 3½ times as much disability as nonindustrial accidents, while among the women the opposite situation existed, disabling nonindustrial injuries being nearly 8 times as frequent, and causing more than twice as much lost time as industrial accidents.

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[4] Cf. Stecker, Margaret L.: "Some Recent Morbidity Data," published by the Metropolitan Life Insurance Co., New York, 1919, p. 4.

[5] This is in accordance with the recommendations of a group of industrial physicians and surgeons meeting in South Manchester, Conn., Dec. 18, 1923, at the invitation of Howell Cheney. Calendar days were considered a better measure of sickness and accident severity than the number of days actually lost from work.

TABLE 3.—*Frequency and duration of absences from work for one day or longer on account of diseases and conditions specified, among males on the pay roll of the Edison Electric Illuminating Co. of Boston; experience during the 10 years ending December 31, 1924*

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of Causes of Death, third revision, Paris, 1920)	Number of absences	Number of days of disability [1]	Annual number of absences per 1,000 on the pay roll	Calendar days per absence	Annual number of days of disability per male on the pay roll
All disability (1-136, 151-158, 165-203, 205)	21,610	162,503	1,189	7.52	8.943
Sickness, exclusive of accidents (1-136, 151-158, 205)	18,879	125,694	1,039	6.66	6.917
Industrial accidents (165-203)	1,596	28,634	88	17.94	1.576
Nonindustrial accidents (165-203)	1,135	8,175	62	7.20	.450
I. Epidemic, endemic, and infectious diseases (1-42)	1,384	22,318	76	16.13	1.228
Influenza and grippe (11)	919	9,023	51	9.82	.496
Tuberculosis of the respiratory system (31)	41	6,699	2	163.39	.369
Other epidemic, endemic, and infectious diseases (1-10, 12-30, 32-42)	424	6,596	23	15.56	.363
II. General diseases not included in Class I (43-69)	975	9,858	54	10.11	.542
Rheumatism, acute and chronic (51, 52)	935	8,515	52	9.11	.468
Other general diseases (43-50, 53-69)	40	1,343	2	33.58	.074
III. Diseases of the nervous system and of the organs of special sense (70-86)	1,061	13,097	58	12.34	.721
Neuralgia, neuritis, sciatica (82)	279	1,746	15	6.26	.096
Neurasthenia, nervousness, etc. (84)	467	7,162	26	15.34	.394
Other diseases of the nervous system (70-81, 83)	17	2,863	1	168.41	.158
Diseases of the eyes (85)	213	895	12	4.20	.049
Diseases of the ears and of the mastoid process (86)	85	431	4	5.07	.024
IV. Diseases of the circulatory system (87-96)	191	5,139	11	26.91	.283
Diseases of the heart and arteries (87-91)	69	3,417	4	49.52	.188
Diseases of the veins (93)	116	1,705	6	14.70	.094
Other diseases of the circulatory system (92, 94-96)	6	17	1	2.83	.001
V. Diseases of the respiratory system (97-107)	8,033	36,168	442	4.50	1.990
Diseases of the nasal fossæ and their annexa (97)	7,266	24,817	400	3.42	1.366
Diseases of the larynx (98)	101	529	6	5.24	.029
Bronchitis, acute and chronic (99)	336	4,421	18	13.16	.243
Pneumonia, all forms (100, 101)	107	4,261	6	39.82	.234
Pleurisy (102)	169	1,300	9	7.69	.072
Other diseases of the respiratory system (103-107)	54	840	3	15.56	.046
VI. Diseases of the digestive system (108-127)	5,382	25,856	296	4.80	1.423
Diseases of the mouth and annexa (108)	462	1,565	25	3.39	.086
Diseases of the pharynx and tonsils (109)	1,261	6,812	69	5.40	.375
Diseases of the stomach (111, 112)	2,120	7,019	117	3.31	.386
Diarrhea and enteritis (114)	465	1,177	26	2.53	.065
Appendicitis (117)	115	3,543	6	30.81	.195
Other diseases of the digestive system (110, 115, 116, 118-127)	959	5,740	53	5.99	.316
VII. Nonvenereal diseases of the genito-urinary system and annexa (128-136)	155	2,871	9	18.52	.158
IX. Diseases of the skin and cellular tissue (151-154)	528	3,860	29	7.31	.212
X. Diseases of the bones and of the organs of locomotion (155-158)	97	1,375	5	14.18	.076
XV. Ill-defined diseases and unknown causes of disability (205)	1,073	5,152	59	4.80	.284

[1] Number of calendar days from the date disability began to the date of return to work.

Number of years of male life under observation: 18,172.

TABLE 4.—*Frequency and duration of absences from work for one day or longer on account of diseases and conditions specified, among females on the pay roll of the Edison Electric Illuminating Co., of Boston; experience during the 10 years ending December 31, 1924*

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of Causes of Death, third revision, Paris, 1920)	Number of absences	Number of days of disability[1]	Annual number of absences per 1,000 on the pay roll	Calendar days per absence	Annual number of days of disability per female on the pay roll
All disability (1-158, 165-203, 205)	8, 608	52, 332	2, 296	6. 08	13. 959
Sickness, exclusive of accidents (1-158, 205)	8, 191	48, 333	2, 185	5. 90	12. 892
Industrial accidents (165-203)	48	1, 154	13	24. 04	. 308
Nonindustrial accidents (165-203)	369	2, 845	98	7. 71	. 759
I. Epidemic, endemic, and infectious diseases (1-42)	353	6, 377	94	18. 07	1. 701
Influenza and grippe (11)	222	3, 535	59	15. 92	. 943
Tuberculosis of the respiratory system (31)	11	1, 783	3	162. 09	. 476
Other epidemic, endemic, and infectious diseases (1-10, 12-30, 32-42)	120	1, 059	32	8. 83	. 282
II. General diseases not included in Class I (43-69)	162	2, 725	43	16. 82	. 727
Rheumatism, acute and chronic (51, 52)	123	1, 449	33	11. 78	. 387
Other general diseases (43-50, 53-69)	39	1, 276	10	32. 72	. 340
III. Diseases of the nervous system and of the organs of special sense (70-86)	891	8, 060	238	9. 05	2. 150
Neuraligia, neuritis, sciatica (82)	133	978	36	7. 35	. 261
Neurasthenia, nervousness, etc. (84)	558	5, 942	149	10. 65	1. 585
Other diseases of the nervous system (70-81, 83)	4	51	1	12. 75	. 014
Diseases of the eyes (85)	151	725	40	4. 80	. 193
Diseases of the ears and of the mastoid process (86)	45	364	12	8. 09	. 097
IV. Diseases of the circulatory system (87-96)	32	1, 625	9	50. 78	. 433
Diseases of the heart and arteries (87-91)	15	1, 496	4	99. 73	. 399
Diseases of the veins (93)	11	109	3	9. 91	. 029
Other diseases of the circulatory system (92, 94-96)	6	20	2	3. 33	. 005
V. Diseases of the respiratory system (97-107)	2, 813	11, 932	750	4. 24	3. 183
Diseases of the nasal fossæ and their annexa (97)	2, 572	8, 046	686	3. 13	2. 146
Diseases of the larynx (98)	77	306	21	3. 97	. 082
Bronchitis, acute and chronic (99)	99	1, 967	26	19. 87	. 525
Pneumonia, all forms (100, 101)	18	867	5	48. 17	. 231
Pleurisy (102)	32	204	8	6. 38	. 054
Other diseases of the respiratory system (103-107)	15	542	4	36. 13	. 145
VI. Diseases of the digestive system (108-127)	2, 173	11, 040	580	5. 08	2. 945
Diseases of the mouth and annexa (108)	218	616	58	2. 83	. 164
Diseases of the pharynx and tonsils (109)	640	3, 437	171	5. 37	. 917
Diseases of the stomach (111, 112)	755	1, 916	202	2. 54	. 511
Diarrhea and enteritis (114)	89	276	24	3. 10	. 074
Appendicitis (117)	69	3, 011	18	43. 64	. 803
Other diseases of the digestive system (110, 115, 116, 118-127)	402	1, 784	107	4. 44	. 476
VII. Nonvenereal diseases of the genito-urinary system and annexa (128-142)	1, 177	3, 878	314	3. 29	1. 034
Dysmenorrhea and kindred conditions (141)	1, 148	2, 790	306	2. 43	. 744
Other diseases and conditions in this group (128-140, 142)	29	1, 088	8	37. 52	. 290
VIII. The puerperal state (143-150)	3	230	1	76. 67	. 061
IX. Diseases of the skin and cellular tissue (151-154)	141	769	38	5. 45	. 205
X. Diseases of the bones and of the organs of locomotion (155-158)	13	51	3	3. 92	. 014
XV. Ill-defined diseases and unknown causes of disability (205)	433	1, 646	115	3. 80	. 439

[1] Number of calendar days from the date disability began to the date of return to work.

Number of years of female life under observation: 3,749.

TABLE 5.—*Ratio of female to male disability; experience of employees on the pay roll of the Edison Electric Illuminating Co. of Boston, 1915–1924*

[Male rate=100]

Diseases and conditions causing disability (with corresponding title numbers in parentheses from the International List of Causes of Death, third revision, Paris, 1920)	Ratio of female to male disability		
	Annual number of absences per 1,000 persons	Number of days of disability per absence [1]	Annual number of days of disability per person
All disability (1–158, 165–203, 205)	193	81	156
Sickness, exclusive of accidents (1–158, 205)	210	89	186
Industrial accidents (165–203)	15	134	20
Nonindustrial accidents (165–203)	158	107	169
I. Epidemic, endemic, and infectious diseases (1–42)	124	112	139
Influenza and grippe (11)	116	162	190
Tuberculosis of the respiratory system (31)	150	99	129
Other epidemic, endemic, and infectious diseases (1–10, 12–30, 32–42)	139	57	78
II. General diseases not included in Class I (43–69)	80	166	134
Rheumatism, acute and chronic (51, 52)	63	129	83
Other general diseases (43–50, 53–69)	500	97	459
III. Diseases of the nervous system and of the organs of special sense (70–86)	410	73	298
Neuralgia, neuritis, sciatica (82)	240	117	272
Neurasthenia, nervousness, etc. (84)	573	69	402
Other diseases of the nervous system (70–81, 83)	100	8	9
Diseases of the eyes (85)	333	114	394
Diseases of the ears and of the mastoid process (86)	300	160	404
IV. Diseases of the circulatory system (87–96)	82	189	153
Diseases of the heart and arteries (87–91)	100	201	212
Diseases of the veins (93)	50	67	31
Other diseases of the circulatory system (92, 94–96)	200	118	500
V. Diseases of the respiratory system (97–107)	170	94	160
Diseases of the nasal fossæ and their annexa (97)	172	92	157
Diseases of the larynx (98)	350	76	283
Bronchitis, acute and chronic (99)	144	151	216
Pneumonia, all forms (100, 101)	83	121	99
Pleurisy (102)	88	83	75
Other diseases of the respiratory system (103–107)	133	232	315
VI. Diseases of the digestive system (108–127)	196	106	207
Diseases of the mouth and annexa (108)	232	83	191
Diseases of the pharynx and tonsils (109)	248	99	245
Diseases of the stomach (111, 112)	173	77	132
Diarrhea and enteritis (114)	92	123	114
Appendicitis (117)	300	142	412
Other diseases of the digestive system (110, 115, 116, 118–127)	202	74	151
VII. Nonvenereal diseases of the genito-urinary system and annexa, except dysmenorrhea and kindred conditions (128–140, 142)	89	203	184
IX. Diseases of the skin and cellular tissue (151–154)	131	75	97
X. Diseases of the bones and of the organs of locomotion (155–158)	60	28	18
XV. Ill-defined diseases and unknown causes of disability (205)	195	79	155

[1] Number of calendar days from the date disability began to the date of return to work.

IMPORTANCE OF RESPIRATORY DISEASES

Respiratory diseases caused approximately one-half of all the absences and 40 per cent of all the time lost on account of sickness among the men. Relatively, the respiratory diseases were not quite so important among the women, causing 42 per cent of female absences and 36 per cent of their total time lost on account of illness. The respiratory frequency rate, however, was considerably higher among the women, but the proportion of respiratory to all diseases was lower, on account of dysmenorrhea and certain other conditions which tend to reduce the relative importance of respiratory diseases in the female experience.

Colds caused far more absences and much more lost time than any other specific disease or condition. Among the men colds accounted for 39 per cent of all the absences on account of sickness, and among the women, 31 per cent. Colds disabled 4 out of 10 men annually and 7 out of 10 women per year, causing a time loss equivalent to 1.4 days per year for every man on the pay roll, and 2.1 days per annum per female employee. Small wonder that we call it the *common* cold!

ABSENCE ON ACCOUNT OF THE MENSTRUAL FUNCTION

It is sometimes assumed that the amount of absence from work on account of the menstrual function is large. The records, however, do not always sustain such an assumption. The average frequency shown for this cause during the 10-year period was 306 absences annually per 1,000 women on the pay roll, equivalent to 1 disability per year among 3 out of every 10 women. The time lost amounted to only three-fourths of a day per year per female employed.

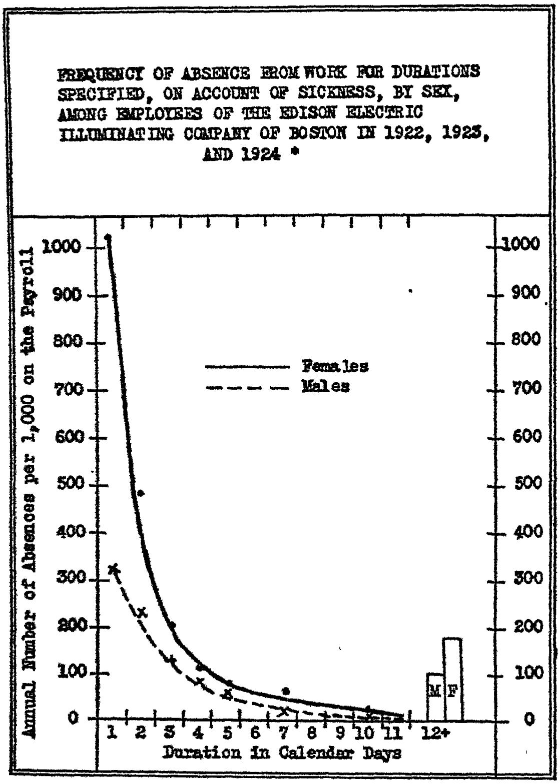
DISABLING SICKNESS AMONG MALE AND FEMALE EMPLOYEES COMPARED

In a comparison of the sickness rates of the men and women, the difference in the age distribution of the two sexes must be taken into account. Absences due to illness are more numerous in early adult life, but the duration of incapacitation increases with age, as shown in Table 8 and Figure 5. The age factor, however, only partially explains why there were so many more absences from sickness among the women. After adjusting the illness rates for differences in the age distribution of the two sexes it was found that there were still 202 absences from sickness (exclusive of accidents) among the women to every 100 males absences.

The difference in the frequency of some of the diseases among females compared with males was much greater than for all sicknesses combined. Among these may be mentioned neurasthenia, nervousness, etc. (5.7 times male rate); diseases of the larynx (3.5 times male rate); diseases of the eyes (3.3 times male rate); diseases of the ears (3 times male rate); appendicitis (3 times male rate); diseases of the pharynx and tonsils (2.5 times male rate); neuralgia, neuritis, sciatica (2.4 times male rate); and diseases of the mouth and annexa, mostly dental conditions (2.3 times male rate). The respiratory diseases were considerably more frequent among the women, with two notable exceptions: pneumonia and pleurisy. Diseases such as rheumatism, the circulatory diseases, certain nonvenereal diseases of the genitourinary system, and diseases of the bones and organs of locomotion showed a lower incidence rate among the women, probably on account of the small proportion of women at the ages at which these diseases normally occur.

DURATION OF DISABILITIES

It has been pointed out that disabling illnesses among the women were shorter, on the average, than among the men. At first glance Figure 3 may appear to contradict this statement, inasmuch as the frequency of absence was higher among the women for each duration specified, including illnesses lasting 12 or more days. However, an analysis of the 12-day and longer disabilities would undoubtedly



* Exclusive of industrial and non-industrial accidents.
Fig. 3.

reveal such a preponderance of the very long cases among the men as to more than counterbalance the time lost by the women from their more numerous absences of shorter duration. Amazing differences are shown in the rates by sex for disabling illnesses of 1 and 2 days' duration, the 1-day cases among the women being 3.2 times as numerous and the 2-day absences 2.1 times as frequent as among the males.

In Figure 4 the duration curves of a few diseases are shown separately for each sex. The relative severity as well as the frequency of

attacks according to sex is thus pictured. It appears that the severity of colds and other diseases of the nasal fossæ, as measured by their duration, and of diseases of the stomach is no greater among women

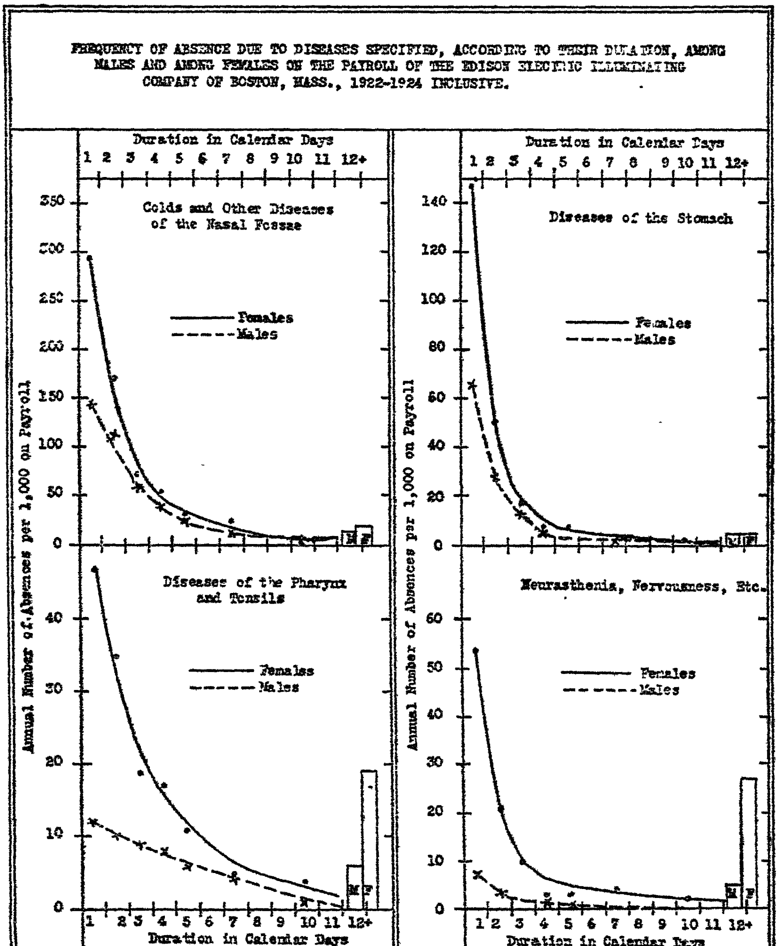


FIG. 4

than among men; but that women not only are much more liable to disablement from certain other causes such as neurasthenia and diseases of the pharynx and tonsils, but they suffer decidedly longer incapacitation than the men from these diseases.

TABLE 6.—*Frequency of absence of different duration on account of disabilities specified; experience of employees of the Edison Electric Illuminating Co., of Boston, in 1922, 1923, and 1924*

Duration of absence in calendar days [1]	Sickness [2]	Industrial accidents	Nonindustrial accidents	Influenza and grippe (11)	Diseases of the nasal fossae (97)	Diseases of the pharynx and tonsils (109)	Diseases of the mouth and annexa (108)	Diseases of the stomach (111, 112)	Neurasthenia, nervousness, etc. (84)	Diseases of the skin (151–154)	Rheumatism, acute and chronic (51, 52)
	Number of absences among males										
All durations	6,390	486	457	347	2,751	409	169	799	133	168	256
1 day	1,938	61	116	28	874	73	72	411	45	39	49
2 days	1,377	41	92	48	692	64	39	173	20	20	66
3 days	782	42	61	44	365	54	17	82	12	18	36
4 days	503	33	40	35	248	47	12	37	7	14	26
5 days	351	40	23	37	153	37	6	24	6	16	10
6 to 8 days	621	55	57	63	259	67	7	31	6	26	29
9 to 11 days	222	30	11	34	67	28	3	11	6	11	13
12 or more days	596	178	57	58	93	39	13	30	31	24	27
	Number of absences among females										
All durations	3,475	18	139	84	1,107	265	121	367	203	52	44
1 day	1,541	2	42	9	442	70	62	223	82	13	10
2 days	724	3	43	10	260	53	20	77	32	12	13
3 days	299	1	12	10	109	29	10	26	15	7	3
4 days	185	4	9	7	82	26	4	12	4	2	5
5 days	110	2	4	4	46	17	3	10	4	3	1
6 to 8 days	258	2	14	15	112	21	7	9	19	9	1
9 to 11 days	95	0	4	12	23	17	3	3	7	2	3
12 or more days	263	4	11	17	33	29	3	7	40	4	8
	Annual number of absences per 1,000 males on the pay roll										
All durations	1,044	79	75	57	449	67	28	130	22	27	42
1 day	316	10	19	5	143	12	12	67	7	6	8
2 days	225	7	15	8	113	10	6	28	3	3	11
3 days	128	7	10	7	60	9	3	13	2	3	6
4 days	83	6	7	6	40	8	2	6	1	2	4
5 days	57	6	4	6	25	6	1	4	1	3	2
Average, 6 to 8 days	34	3	3	3	14	4	0	2	0	1	2
Average, 9 to 11 days	12	2	1	2	4	1	0	1	0	1	1
Total, 12 or more days	97	29	9	9	15	6	2	5	5	4	4
	Annual number of absences per 1,000 females on the pay roll										
All durations	2,304	12	92	56	734	176	80	243	135	34	29
1 day	1,022	1	28	6	293	47	41	148	54	9	7
2 days	480	2	28	7	172	35	19	51	21	8	9
3 days	198	1	8	7	72	19	7	17	10	5	2
4 days	123	3	6	5	54	17	3	8	3	1	3
5 days	73	1	3	3	31	11	2	7	3	2	1
Average, 6 to 8 days	57	0	3	3	25	5	2	2	4	2	0
Average, 9 to 11 days	21	0	1	3	5	4	1	1	2	0	1
Total, 12 or more days	174	3	7	11	22	19	2	5	27	3	5

Equivalent number of persons under observation for 1 year: Males, 6,129; females, 1,508.

[1] Number of calendar days intervening between the date absence began and the date employee returned to work.

[2] Not including industrial or nonindustrial accidents.

SICKNESS RATES AT DIFFERENT AGES

In order to express sickness among employees in terms of rates per 100 or per 1,000 at different ages, the number of persons on the pay roll in each age group must be ascertained. The most accurate method of doing this is to add the number of days which each em-

ployee was on the pay roll during the period selected, and divide the total by the number of days in the calendar year. The quotient thus obtained represents the equivalent number of employees on the pay roll for a full year, and, in actuarial parlance, is the "years of exposure." On account of the impracticability of such a procedure in the present instance, the following approximation of years of exposure was resorted to: The age distribution as of July 15, 1923, was obtained from the personnel records, and the percentage in each age group was computed separately for each sex. This sort of cross section of the personnel was obtained as of July, 1923, because it represented the approximate mid-point of the three years, 1922 to 1924, selected for an analysis according to age. The average number on the pay roll during each of the three years was then summed, and the per cent of total persons in each age group applied to this three-year total, separately for each sex. The results are given in Table 7, and appear to approximate the years of exposure fairly well, judging from studies in which the accuracy of the method could be tested. In the analysis by age we have what is equivalent to a record of 6,100 males and 1,500 females for one full year.

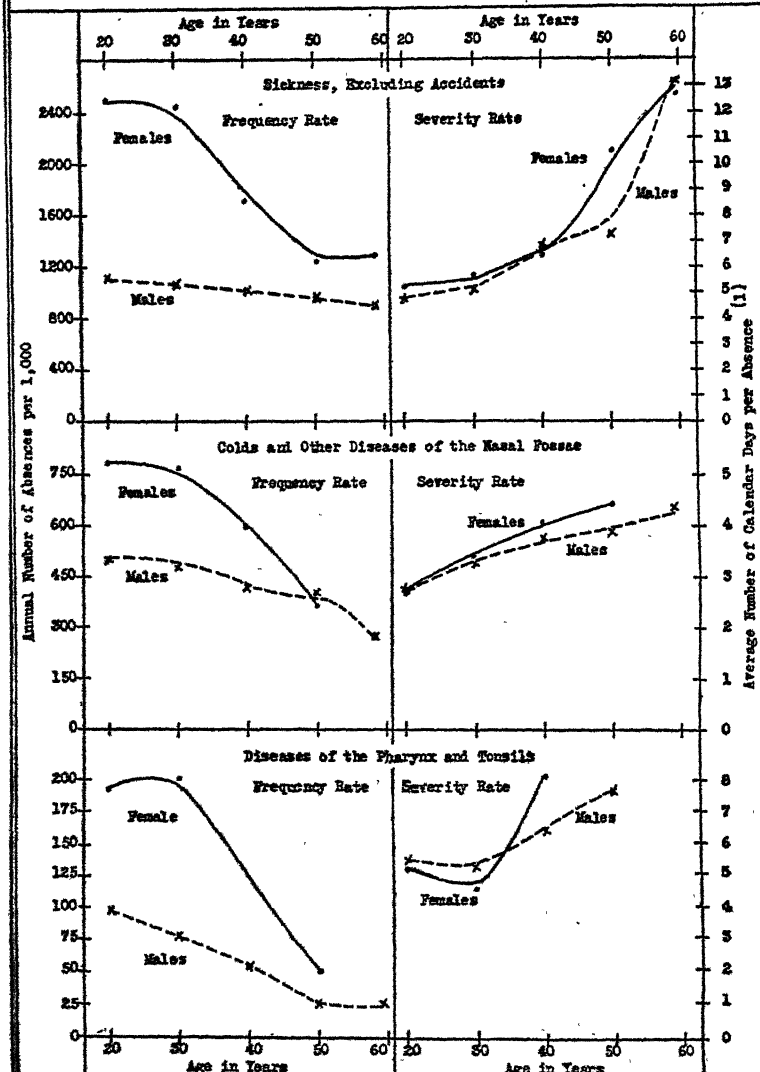
TABLE 7.—*Approximate number of years of life under observation according to age and sex; employees of the Edison Electric Illuminating Co. of Boston in 1922, 1923, and 1924*

Age group	Males	Females	Age group	Males	Females
All ages	6,129	1,508	35 to 44	1,490	196
			45 to 54	858	77
15 to 24	1,434	712	55 and over	392	22
25 to 34	1,955	501			

The frequency of absence for one day or longer on account of sickness declined gradually as age advanced among the men. It is interesting to observe that the decrease in the occurrence of certain diseases was considerably greater than the decrease in the average for all illnesses. Colds, for example, and diseases of the pharynx and tonsils disabled older men less often than men in the twenties and thirties. Diseases of the mouth and annexa (mostly conditions of the teeth), and diseases of the stomach exhibited the same tendency, but the curve for rheumatism mounted steadily upward from the twentieth to the fiftieth year. Industrial accidents failed to decrease in frequency until after age 50, though the nonindustrial accident rate showed a gradual decline from age 20 onward. Industrial accidents caused disability to the men oftener than nonindustrial accidents at all ages except 15 to 24. There was very little variation according to age in the incidence rate of diseases of the skin and in neurasthenia among the men.

It is sometimes assumed that the youngest employees, being the most inexperienced, are especially liable to disablement by industrial injuries. The age curve for industrial accidents among the male employees of this company, however, indicates no such tendency.

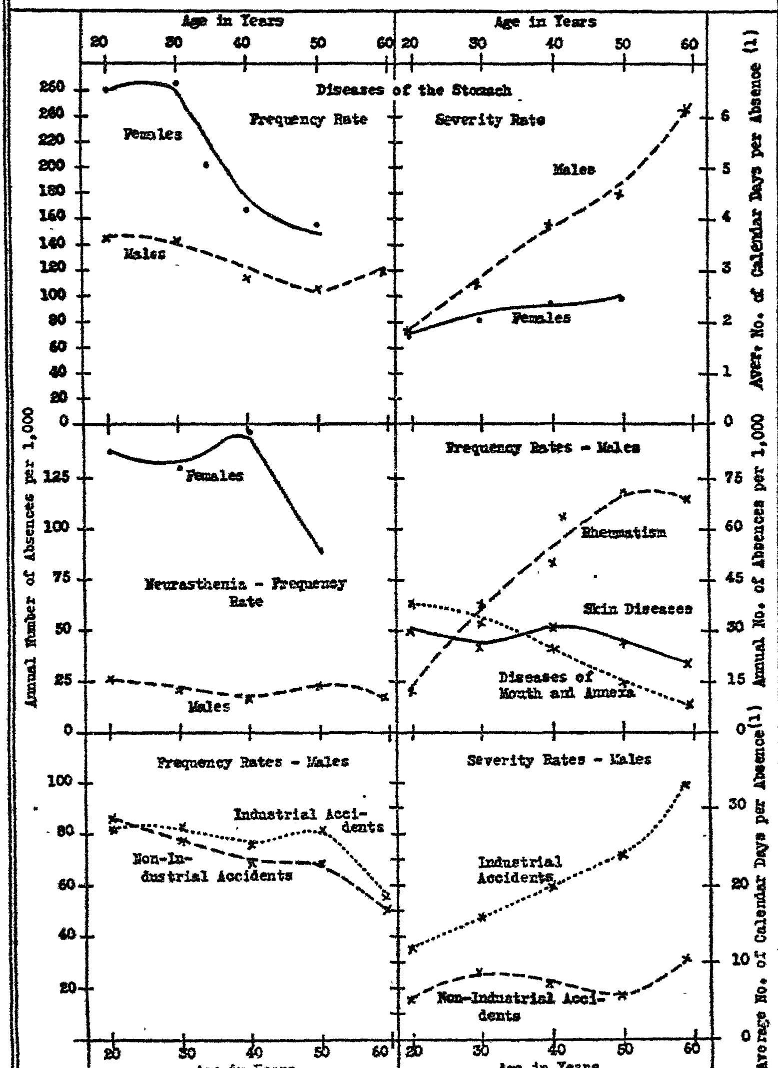
FREQUENCY AND DURATION OF ABSENCE FROM WORK BY AGE ON ACCOUNT OF ILLNESSES SPECIFIED, AMONG EMPLOYEES OF THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON, MASS., IN 1922, 1923, AND 1924.



(1) From the date absence began to the date returned to work.

FIG. 5

FIGURE 5. CONTINUED - FREQUENCY AND DURATION OF ABSENCE FROM WORK BY AGE ON ACCOUNT OF ILLNESSES SPECIFIED, AMONG EMPLOYEES OF THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON, MASS., in 1922, 1923, AND 1924.



(1) From the date absence began to the date returned to work.

Fig. 5. Continued.

In comparison with the male age curves, sickness frequency among the women declined in the older ages with striking abruptness. In Figure 5 it is seen that the decline was especially sharp for colds, diseases of the pharynx and tonsils, and diseases of the stomach. It is questionable whether these diseases normally decline in frequency so rapidly after age 30 among women. Quite possibly in this company the older women were a more selected group than the younger women; that is to say, the less healthy may have gradually dropped out, leaving a group above age 30 or 35 possessing greater resistance to colds, tonsillitis, stomach disorders, etc., than the group as a whole at the younger ages. Doubtless more light will be shed upon this point (if it is found to be a common experience) by other studies in the industrial morbidity field.

The severity rates indicate a definite increase in the duration of incapacitation as age advances. A slight lessening of recuperative ability appears to manifest itself even in the early thirties, and to about the same extent in either sex. In fact, the duration curves for each sex, plotted for sickness exclusive of accidents, almost tread upon each other up to age 40, and do not diverge much after that age. There appears to be a considerable difference, however, in the relative severity of diseases of the stomach according to sex, the men experiencing longer disabilities, especially in middle age. Attention is called to the greater severity of industrial than nonindustrial accidents in each age group among the men.

TABLE 8.—*Disability according to age; experience of employees on the pay roll of the Edison Electric Illuminating Co. of Boston in 1922, 1923, and 1924*

Age group	Males					Females				
	Number of absences	Number of days of disability	Annual number of absences per 1,000 on pay roll	Number of days per absence	Annual number of days of disability per person on pay roll	Number of absences	Number of days of disability	Annual number of absences per 1,000 on pay roll	Number of days per absence	Annual number of days of disability per person on pay roll
	Sickness, exclusive of accidents									
All ages	6,399	39,582	1,044	6.19	6.458	3,475	19,771	2,304	5.69	13.111
15 to 24	1,606	7,674	1,120	4.78	5.351	1,779	9,096	2,499	5.11	12.775
25 to 34	2,121	10,901	1,085	5.14	5.576	1,233	7,042	2,461	5.71	14.056
35 to 44	1,512	10,480	1,015	6.94	7.038	339	2,256	1,730	6.65	11.510
45 to 54	826	6,055	963	7.33	7.057	96	1,018	1,247	10.60	13.221
55 and over	334	4,466	852	13.37	11.393	28	359	1,273	12.82	16.318
	Industrial accidents									
All ages	486	8,660	79	17.82	1.413	18	396	12	22.00	0.263
15 to 24	118	1,422	82	12.05	.992	9	106	13	11.78	.149
25 to 34	163	2,611	83	16.02	1.336	4	14	8	3.50	.028
35 to 44	113	2,210	76	19.56	1.483	2	221	10	110.50	1.128
45 to 54	70	1,685	82	24.07	1.964	2	5	26	2.50	.065
55 and over	22	732	56	33.27	1.867	1	50	45	50.00	2.273

TABLE 8.—*Disability according to age; experience of employees on the pay roll of the Edison Electric Illuminating Co. of Boston in 1922, 1923, and 1924*—Contd.

Age group	Males					Females				
	Number of absences	Number of days of disability	Annual number of absences per 1,000 on pay roll	Number of days per absence	Annual number of days of disability per person on pay roll	Number of absences	Number of days of disability	Annual number of absences per 1,000 on pay roll	Number of days per absence	Annual number of days of disability per person on pay roll
	Nonindustrial accidents									
All ages	457	3,282	75	7.18	0.535	139	684	92	4.92	0.454
15 to 24	123	641	86	5.21	.447	73	288	103	3.95	.404
25 to 34	152	1,366	78	8.99	.699	40	244	80	6.10	.487
35 to 44	103	742	69	7.20	.498	15	64	77	4.27	.327
45 to 54	59	328	60	5.56	.282	6	23	78	3.83	.299
55 and over	20	205	51	10.25	.523	5	65	227	13.00	2.956
	Influenza and grippe (11)									
All ages	347	2,668	57	7.69	0.435	84	963	56	11.46	0.639
15 to 24	68	376	47	5.53	.262	36	313	51	8.69	.440
25 to 34	111	653	57	5.88	.334	31	384	62	12.39	.766
35 to 44	95	975	64	10.26	.651	9	123	46	13.67	.628
45 to 54	47	407	55	8.66	.474	7	117	91	16.71	1.519
55 and over	26	257	66	9.88	.656	1	26	45	26.00	1.182
	Colds and other diseases of the nasal fossæ (97)									
All ages	2,751	9,229	449	3.35	1.506	1,107	3,527	734	3.19	2.339
15 to 24	730	2,019	509	2.77	1.408	558	1,547	784	2.77	2.173
25 to 34	928	2,993	475	3.23	1.531	391	1,331	780	3.40	2.657
35 to 44	641	2,423	430	3.78	1.626	116	469	592	4.04	2.393
45 to 54	342	1,317	399	3.85	1.535	28	123	364	4.39	1.597
55 and over	110	477	281	4.34	1.217	14	57	636	4.07	2.591
	Bronchitis, acute and chronic (99)									
All ages	137	1,771	22	12.93	0.289	47	1,112	31	23.66	0.737
15 to 24	27	345	19	12.78	.241	22	358	31	16.27	.503
25 to 34	36	353	18	9.81	.181	19	645	38	33.95	1.287
35 to 44	29	364	19	12.55	.244	4	51	20	12.75	.260
45 to 54	30	400	35	13.33	.466	2	58	26	29.00	.753
55 and over	15	309	38	20.60	.788	0	0	0	0	0
	Diseases of the pharynx and tonsils (109)									
All ages	409	2,281	67	5.58	0.372	265	1,355	176	5.11	0.899
15 to 24	140	749	98	5.35	.522	137	697	192	5.09	.979
25 to 34	155	809	79	5.22	.414	101	454	202	4.50	.906
35 to 44	81	507	54	6.26	.340	22	177	112	8.05	.903
45 to 54	22	169	26	7.68	.197	4	20	52	5.00	.260
55 and over	11	47	28	4.27	.120	1	7	45	7.00	.318
	Diseases of the mouth and annexa (108)									
All ages	169	780	28	4.62	0.127	121	322	80	2.66	0.214
15 to 24	54	126	38	2.33	.088	67	171	94	2.55	.240
25 to 34	63	303	32	4.81	.155	44	83	88	1.89	.166
35 to 44	37	306	25	8.27	.205	7	34	36	4.86	.173
45 to 54	12	24	14	2.00	.028	2	10	26	5.00	.130
55 and over	3	21	8	7.00	.054	1	24	45	24.00	1.091

TABLE 8.—*Disability according to age; experience of employees on the pay roll of the Edison Electric Illuminating Co. of Boston in 1922, 1923, and 1924*—Contd.

Age group	Males: Number of absences	Males: Number of days of disability	Males: Annual number of absences per 1,000 on pay roll	Males: Number of days per absence	Males: Annual number of days of disability per person on pay roll	Females: Number of absences	Females: Number of days of disability	Females: Annual number of absences per 1,000 on pay roll	Females: Number of days per absence	Females: Annual number of days of disability per person on pay roll
Diseases of the stomach (111,112)										
All ages	799	2,523	130	3.16	0.412	367	834	243	2.27	0.553
15 to 24	209	387	146	1.85	.270	186	328	261	1.76	.461
25 to 34	282	771	144	2.73	.394	134	272	267	2.03	.543
35 to 44	170	664	114	3.91	.446	33	77	168	2.33	.393
45 to 54	91	412	106	4.53	.480	12	29	156	2.42	.377
55 and over	47	289	120	6.15	.737	2	128	91	64.00	5.818
Diarrhea and enteritis (114)										
All ages	178	486	29	2.73	0.079	37	101	25	2.73	0.067
15 to 24	38	92	26	2.42	.064	19	39	27	2.05	.055
25 to 34	54	132	28	2.44	.068	16	52	32	3.25	.104
35 to 44	51	112	34	2.20	.075	1	1	5	1.00	.005
45 to 54	28	114	33	4.07	.133	1	9	13	9.00	.117
55 and over	7	36	18	5.14	.092	0	0	0	0	0
Neurasthenia, nervousness, etc. (84)										
All ages	133	2,099	22	15.78	0.342	203	2,503	135	12.33	1.660
15 to 24	38	293	26	7.71	.204	100	1,306	140	13.06	1.834
25 to 34	41	524	21	12.78	.268	65	840	130	12.92	1.677
35 to 44	26	822	17	31.62	.552	30	147	153	4.90	.750
45 to 54	21	337	24	16.05	.393	7	128	91	18.29	1.662
55 and over	7	123	18	17.57	.314	1	82	45	82.00	3.727
Diseases of the skin and cellular tissue (151-154)										
All ages	168	1,215	27	7.23	0.198	52	229	34	4.40	0.152
15 to 24	43	267	30	6.21	.186	29	117	41	4.03	.164
25 to 34	49	223	25	4.55	.114	15	71	30	4.73	.142
35 to 44	46	376	31	8.17	.252	5	19	26	3.80	.097
45 to 54	22	227	26	10.32	.265	3	22	39	7.33	.286
55 and over	8	122	20	15.25	.311	0	0	0	0	0
Rheumatism, acute and chronic (51, 52)										
All ages	256	1,890	42	7.38	0.308	44	473	29	10.75	0.314
15 to 24	19	181	13	9.53	.126	13	101	18	7.77	.142
25 to 34	75	447	38	5.96	.229	17	206	34	12.12	.411
35 to 44	74	574	50	7.76	.385	8	82	41	10.25	.418
45 to 54	61	376	71	6.16	.438	6	84	78	14.00	1.091
55 and over	27	312	69	11.56	.796	0	0	0	0	0
Dysmenorrhea and kindred conditions (141)										
All ages						546	853	362	1.56	0.566
15 to 24						310	429	435	1.38	.608
25 to 34						203	369	405	1.82	.737
35 to 44						28	46	143	1.64	.235
45 and over						5	9	51	1.80	.091

FUTURE STUDIES

Some of the more general results observable from the tabulations covering a 10-years' sickness experience of employees of a public utility have been presented in the present article. It is the intention in later studies to analyze the accumulating data (for the records are still being continued) from the standpoint of endeavoring to throw as much light as possible upon specific medical and administrative questions. From these and other studies it is hoped that a contribution may be made to the fundamental information needed for an acceleration of progress in the field of industrial hygiene. A study of sickness among persons in different occupations of the electric illuminating company is in preparation and will be presented in an early issue of the Public Health Reports.

SUMMARY

In an analysis of a 10-year record of absences from work due to disability among employees of an electric light and power company in Boston the following points, among others, were observed:

1. Sickness rates covering the shorter illnesses, i. e., those lasting less than six or seven working days, computed from records of absence among persons whose pay is continued during sickness are not comparable with sickness rates covering the shorter disabilities among wage earners who lose their pay when incapacitated by illness.

2. The age distribution of the personnel, and especially of the female personnel, showed a very high proportion at the younger ages.

3. The toll of sickness and accidents during the 10 years reviewed was equivalent to an annual experience of 8.9 calendar days of disability per male, and 14.0 calendar days of disability per female on the pay roll.

4. Among the men sickness caused twelve times as many absences as industrial accidents, while among the women the ratio was 171 sicknesses to 1 industrial accident.

5. Respiratory diseases caused approximately one-half of all the absences and 40 per cent of all the time lost on account of sickness among the men. The percentages for respiratory diseases among the women were not quite so high.

6. Colds and other diseases of the nasal fossæ incapacitated, on the average, 4 out of 10 men annually and 7 out of 10 women; and the days of disability were equivalent to 1.4 per year per man and 2.1 per annum per female employee.

7. There were 202 absences from sickness, exclusive of accidents, among the women to every 100 male absences, after adjusting for differences in the age distribution of the two sexes.

8. The frequency of absence for one day or longer on acount of sickness decreased as age advanced among persons of either sex, but the duration of incapacitation definitely increased with age, especially in the higher age groups.

ACKNOWLEDGMENTS

We are indebted to the Edison Electric Illuminating Co. of Boston for making the data available and for generous assistance in the work of tabulation, and especially to Mr. Herbert W. Moses, Superintendent, Employment Bureau, for his cooperation and advice on various questions which arose in the course of analyzing the statistical material.

ADMINISTRATIVE MEASURES FOR INFLUENZA CONTROL IN GREAT BRITAIN

Revised Memorandum Issued by the British Minister of Health

In view of the prevalence of influenza in Europe, the control measures recommended in a revised memorandum issued by the British Minister of Health may be of especial interest to health officers in this country. The original memorandum was issued in December, 1919, but as there has been little progress made in influenza research since that time, the changes from the earlier recommendations are slight and consist principally of some deletions and a "toning down of former hopes."

The following is taken from The Medical Officer for January 29, 1927, which, commenting editorially on the memorandum, states that with no specific means of prevention or of treatment available, it is all the more incumbent upon us to employ all the means we possess in combating the disease; "for, feeble as they are, they are not negligible, and their judicious application produces results not to be despised."

In view of the prevalence of influenza in certain countries abroad, the Minister of Health has considered it desirable to draw the attention of local authorities to the memorandum on influenza which was issued by his department in December, 1919. The memorandum has now been revised in certain respects, especially in reference to the administrative measures suggested in Part III. In Circular 50, which was issued on the 20th December, 1919, the Minister's general sanction was given to the provision by local authorities of medical assistance (including nursing and the dispensing of doctors' prescriptions) for the poorer inhabitants of their districts who are suffering from influenza. The Minister is advised that neither the incidence of, nor the mortality from, influenza in this country is at present such as to cause serious anxiety; but in view of the possibility of the disease again becoming epidemic, he suggests that local authorities should give consideration to the facilities which they can provide for assisting persons suffering from influenza, with a view to those facilities being available

if and when they are required. He also advises that preparation should be made for the local publication, if necessary, of full information respecting the facilities provided, and of leaflets, posters, etc., setting out the precautions to be adopted to minimize the risk of infection and complications.

The administrative measures recommended in the revised memorandum are as follows:

Quarantine.—The question of the prevention by quarantine of the importation of influenza from abroad has been considered and may be dismissed as impracticable.

Education.—Health authorities should endeavor to inform the public, by means of leaflets, posters, notices in the press, lectures in the schools, etc., as to the nature and gravity of the malady, how to prevent infection, and the precautions to be observed in case of attack. The leaflets should advise ordinary prudence in diet and general mode of life, the avoidance of crowded gatherings, the importance of free ventilation, early isolation of the sick, cleanliness, the disinfection of discharges from the nose and mouth, and other precautions calculated to maintain the health and resistance of the individual and to diminish the opportunities of infection.

In this connection it is particularly desirable that authorities should make widely known full and exact information respecting the local facilities which have been provided in the district. Thus—

How to apply for nursing assistance.
Special arrangements, if any, for the provision of domiciliary medical attendance.
How to apply for "home help" for an influenza-stricken household.
Special arrangements made during an epidemic at public kitchens, crèches, etc.
Hospitals available for sudden or severe cases.
Ambulance service or first-aid available.
Or other necessary local information.

Notification.—On a balance of the considerations involved, the ministry have decided that it is not advisable to make influenza a disease which is compulsorily notifiable throughout the country. Better prevention of this disease can not be expected as a result of its notification; while the notification of all "influenza" does not help local authorities to the knowledge of those cases where assistance to the individual patient or his household is most needed.

Moreover, regarded merely from the statistical standpoint, the value of influenza notification returns is limited, both on account of the numberless unnotified cases not seen by a doctor and of the uncertainties often attaching to the significance of the term "influenza."

Notification of severe cases.—In some places it may, however, be possible to make a useful arrangement with local practitioners whereby all cases in which the assistance of the local authority is required, in the form of nursing, home help, or institutional treatment, are notified voluntarily to the medical officer of health. Elsewhere, health visitors may be employed to obtain knowledge of all such cases in the ordinary course of their district visiting. Under the public health (pneumonia, malaria, dysentery, etc.) regulations, acute primary pneumonia and acute influenzal pneumonia are now compulsorily notifiable in all districts in England and Wales.

Efforts to lessen the opportunities for infection.—Notwithstanding the wide distribution of advice, the importance of isolation of the patient and of protection of those in attendance on him appears to be only imperfectly realized. One of the most tragic features of the last pandemic was the high mortality in hospital staffs. It is possible that some of this might have been prevented by the observance of the precautions ordinarily adopted in nursing acute infectious diseases.

Closure of schools.—This measure may sometimes be employed with advantage, particularly in rural and small urban districts, where the excluded children have few opportunities of coming in contact with each other outside the school; the measure is of little utility in densely populated urban areas. Where the closure of day schools is resolved upon, the Sunday schools should also be closed. Children showing symptoms of influenza should be excluded from school during the period of attack, and should not be readmitted until a careful medical examination of the heart and lungs has been made to eliminate possible latent complications and sequelæ.

Public places of entertainment are justifiably regarded as important foci of the spread of the disease. By the terms of their license, the proprietors of many cinema theaters are compelled, under certain circumstances, to exclude from their performances children of school age, and to provide intervals for the efficient perflation and ventilation of the building. Regulations issued by the local government board in November, 1918, made these conditions apply to all places of public entertainment throughout the country. These emergency regulations, which were admittedly incomplete in certain respects, were withdrawn in May, 1919, with the subsidence of the winter wave, and no sufficient justification has yet been advanced for their reissue.

Other centers of overcrowding.—The overcrowding of trains and trams was held largely responsible for the spread of the disease in 1918, and, in the light of further experience, the ministry are disposed to indorse this opinion. It must be remembered that the intensity of such congestion is usually greater than in even grossly overcrowded tenements. The fact that it is only endured for short continuous periods is not a barrier to successful passage of a highly infective virus from person to person. As regards busses and trams, permanent thorough ventilation should be generally advocated and adopted.

Disinfection.—The routine disinfection of premises and articles after use by influenza patients is not called for, but a thorough washing and cleansing of rooms and their contents and of washable articles, bedding, or apparel is desirable. The practice of spraying halls and places of public resort with a disinfectant fluid is of doubtful utility, and only tends to create a false sense of security.

Organization of domiciliary medical and nursing service and division of district into areas for this purpose.—Where in serious epidemics difficulty is experienced in securing early and adequate professional treatment of the cases as they arise, there is sometimes advantage in forming a "pool" of unattached medical men whose services can be placed at the disposal of practitioners as required. In the larger areas part of such a "pool" may be formed by the use of the health authorities' own medical staff.

Shortage of nurses is often a more serious problem, but much may be accomplished by subdividing the districts into small areas and using one or more nurses in each area as a nucleus round which a service of voluntary helpers can be gathered. In extreme emergencies it may even be advisable for a local authority to suspend temporarily its maternity and child welfare work and to liberate its health visitors for domiciliary nursing. The cooperation of the local district nursing association, if such exists, should be enlisted in carrying out any scheme of nursing which may be decided upon. Much can also be done in the way of providing home assistance. All cases coming to the notice of the health visitors may be carefully investigated, note being made as to the amount and kind of assistance needed. In certain districts it may be found desirable, during a period of special stress, that emergency kitchens should be improvised for the supply of food to affected households; it is often advisable to establish crèches for the reception of children from households where the parents are stricken with the disease.

Provision of institutional treatment.—Often a local authority will find it helpful to use one or more wards of the isolation hospitals to supplement the accommodation provided by the general hospitals and poor-law infirmaries, but care is required in the selection of cases for removal to hospital. It should be remembered that, as a rule, patients with pulmonary complications bear removal badly, and, therefore, it should only be attempted with the concurrence and under the supervision of the medical practitioner in attendance. In hospital, the patient should be isolated by screening or otherwise, and ambulance and nursing attendants should observe all precautions usual in treating an acutely infectious respiratory disease.

The importance of rest, warmth, and free ventilation in the treatment of influenza should always be emphasized. By the establishment of emergency hospitals in schools, halls, and large unoccupied private houses, the supply of doctors and nurses—particularly the latter—may be considerably economized.

Drugs, etc.—Attempts to induce an increased resistance to infection by administration of commercially advertised medicinal remedies appear to have been justly deprecated or actually discountenanced as likely to do more harm than good.

Summarizing the recommendations of the memorandum, Sir George Newman points out it is evident that in some directions

local authorities can do much good by energetic action during a wave of epidemic prevalence. He adds: "Measures can be taken which in the aggregate may reduce the opportunities of exposure to infection, and by thus helping to space out the epidemic something is done to prevent the serious dislocation of the ordinary life of the community which it produces—a dislocation which itself increases the danger by making proper care of the sick difficult. The most important services which can be rendered, however, consist in the *organization of the available nursing service and the provision of assistance to influenza-stricken households.*"

DEATH RATES IN A GROUP OF INSURED PERSONS

RATES FOR PRINCIPAL CAUSES OF DEATH, DECEMBER, 1926, AND THE YEARS 1916-1926, INCLUSIVE

The accompanying tables are taken from the Statistical Bulletin for January, 1927, issued by the Metropolitan Life Insurance Co. They present the mortality experience of the industrial insurance department of the company by principal causes of death for December, 1926, and a comparison of the rates for the years 1916 to 1926, inclusive. The rates for 1925 and 1926 are based on a strength of approximately 17,000,000 insured persons in the United States and Canada.

DECEMBER, 1926

The death rate for December (9.2) was a little higher than the rate for the same month last year (8.9), but was about the average for that month for this group of persons.

Increased rates as compared with December, 1925, were noted, especially for whooping cough, diphtheria, influenza, cancer, diabetes, heart disease, and Bright's disease—the mortality from diphtheria and cancer being higher than in any other month of 1926.

Decreases were shown for tuberculosis, pneumonia, and diarrheal diseases. The drop in the pneumonia death rate concurrently with a rise in influenza mortality is interpreted as indicating that, in December at least, the influenza prevailing was not the type which quickly develops into pneumonia.

Death rates (annual basis) for principal causes per 100,000 lives exposed, November and December, 1926, and year 1925

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed [1]			
	Dec. 1926	Nov. 1926	Dec. 1925	Year 1925
Total, all causes	918.6	837.5	893.8	907.5
Typhoid fever	4.0	6.1	4.4	4.6
Measle	3.3	1.2	4.4	3.3
Scarlet fever	2.4	3.2	3.2	3.5
Whooping cough	5.7	6.0	4.3	7.7
Diphtheria	15.3	12.7	11.3	10.6
Influenza	18.4	13.3	16.8	22.0
Tuberculosis (all forms)	88.4	84.6	90.2	98.1
Tuberculosis of resp'y system	78.9	75.2	81.4	85.9
Cancer	77.2	71.2	72.1	70.5
Diabetes mellitus	19.9	15.8	16.4	15.2
Cerebral hemorrhage	53.9	49.8	55.1	53.6
Organic diseases of heart	137.7	123.6	133.2	126.6
Pneumonia (all forms)	95.9	70.6	101.4	86.5
Other respiratory diseases	15.0	11.6	15.6	13.2
Diarrhea and enteritis	17.1	27.3	19.3	36.7
Bright's disease (chronic nephritis)	76.8	69.4	72.5	69.8
Puerperal state	12.6	11.0	13.1	16.5
Suicides	7.3	7.9	6.1	6.9
Homicides	7.2	7.2	6.6	7.2
Other external causes (excluding suicides and homicides)	61.3	61.7	54.7	64.3
Traumatism by automobiles	14.1	19.5	15.3	16.6
All other causes	199.3	183.4	193.2	190.7

[1] All figures include infants insured under one year of age.

YEAR 1926, AND 1916–1926

Health conditions in this group were good in 1926, the death rate being 8.8 [1] per 1,000, identical with the rate for 1922, but slightly higher than the rates for 1921, 1924, and 1925—years of record low mortality. As an indication of the progress in preventive medicine, attention is called to the fact that had the rate of 1911 prevailed in 1926 there would have occurred 63,330 more deaths than were actually reported in this group of persons.

The year was given a bad start from a health standpoint by an early increased prevalence of influenza and pneumonia, excess mortality from Bright's disease and cerebral hemorrhage, increased prevalence of measles, and higher mortality from whooping cough. Marked improvement began in May, however, and in June the death rate from all causes was lower than that for the corresponding month of 1925. During the remainder of the year health conditions in general were as favorable as during the record health year 1925.

New low records were established for a number of diseases of major public-health interest. Typhoid fever, which had shown a continuous decline for many years up to 1924 (followed by a slight rise in 1925), established a new minimum rate of 4.2 per 100,000;

[1] It should be borne in mind that the death rates in the group of persons here considered are uniformly lower than the rates for the general population, varying between 82 and 87 per cent of the rate for the registration area from 1911 to 1919, inclusive, and from 72 to 75 per cent in the years 1920 to 1925, inclusive In 1924 and 1925 the rates for the insured group were 72 per cent of the rates for the registration area.

scarlet fever repeated its minimum rate of 3.4 for 1925; diphtheria established a new low point with a rate of 9.5; diarrheal diseases declined to a minimal figure of 10.5; and diseases of pregnancy and childbirth showed a decline to a rate of 15.6 per 100,000—well below the former minimum of 16.9 established in 1925.

For the second time in the records of this group the tuberculosis death rate was below 100 per 100,000, although there was a slight increase to 99.2 as compared with 98.2 in 1925.

The combined death rate for measles, scarlet fever, whooping cough, and diphtheria in 1926 was 25.8 per 100,000 (the lowest recorded except for 1925, which was 19.7) as compared with 58.9 in 1911, and with a rate of 27.3 for diphtheria alone in 1911 and of 22.8 for typhoid fever in that year. With regard to the decline in the diphtheria rate the Bulletin states:

> The new minimum rate for diphtheria is perhaps the greatest single sanitary accomplishment of 1926. There is no good reason why the continuous drop in the diphtheria rate which we have observed since 1921 should not go on through coming years until the mortality from this dreaded scourge of childhood becomes a negligible item in our mortality record. We now know how to recognize susceptibles and how to protect them. Every year the attack upon diphtheria is becoming more thoroughgoing. Demonstrations in a number of communities have shown beyond a doubt that diphtheria can be stamped out. The time has come when we can say that, with the increasing administration of toxin-antitoxin to school children and to those of preschool age, the outlook is indeed good for the virtual control of this disease.

While the gross death rate and the rates for most of the important communicable diseases for 1926 are favorable, there are some unsatisfactory mortality factors. Cancer caused 12,830 deaths in this group in 1926, equivalent to a rate of 74.9 per 100,000—the highest death rate for this disease recorded in the history of the company. Cancer deaths constituted 8.5 per cent of all the deaths in 1926.

Diabetes recorded the highest death rate since 1922, and, with the exception of that year, the highest ever recorded among these policyholders.

The death rates for the principal degenerative diseases all increased in 1926. The mortality from organic heart disease increased 5.7 per cent in 1926 as compared with 1925, and smaller increases were recorded for chronic nephritis and cerebral hemorrhage. It is stated that rises in these death rates were, in part at least, reflexes of the influenza outbreak early in the year. Heart disease, as in every year since 1921, was the leading cause of death.

The rate for alcoholism rose to 3.7 per 100,000 as compared with 3 in 1925. The rate for this cause was the highest since 1917 (4.9). In the pre-war years, 1911–1916, the highest rates were 5.3 and 5.2 and the lowest 4 and 4.1.

The death rate for cirrhosis of the liver was 6.9 per 100,000 in 1926 as compared with 6.7 in 1925 and with 5.8 in both 1924 and 1923.

Automobile fatalities again record a new maximum, having increased without interruption since 1911. The death rate from this cause has increased 39.3 per cent in 5 years, 129.7 per cent in 10 years, and 639.1 per cent since 1911.

INCREASE IN LIFE EXPECTANCY

The life expectancy of the industrial policyholders has increased 8.9 years during the period 1911–1925. The expectancy of life at birth in 1925 was 55.5 years.

Death rates per 100,000 for principal causes of death, 1911, and 1916 to 1926, ages one and over

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916	1911
All causes of death	883.4	846.3	848.0	897.1	882.9	870.6	989.4	1063.0	1559.2	1161.1	1168.1	1253.0
Typhoid fever	4.2	4.6	4.4	5.2	5.7	6.7	6.7	7.3	11.5	12.1	13.0	22.8
Communicable diseases of childhood	25.8	19.7	26.2	33.1	29.8	37.9	43.1	31.5	41.6	46.8	40.8	58.9
Measles	8.0	2.5	5.7	8.4	4.3	3.2	8.5	3.5	8.6	11.1	9.9	11.4
Scarlet fever	3.4	3.4	4.3	4.4	4.9	7.0	6.0	3.9	3.6	6.0	4.1	13.1
Whooping cough	5.0	3.6	3.5	4.8	2.6	3.9	6.6	3.2	10.1	5.1	5.8	7.1
Diphtheria	9.5	10.2	12.7	15.5	18.0	23.8	22.1	20.9	19.3	24.6	21.0	27.3
Influenza and pneumonia	105.3	88.3	84.4	107.7	95.3	76.5	159.5	214.1	542.2	135.4	138.1	131.2
Influenza	27.3	19.4	14.2	30.1	21.7	8.7	53.5	96.9	272.4	14.4	23.8	15.9
Pneumonia	78.0	69.0	70.2	77.6	73.7	67.8	106.1	117.2	269.8	121.0	114.3	115.3
Tuberculosis, all forms	99.2	98.2	104.4	110.5	114.2	117.4	137.9	156.5	189.0	188.9	190.2	224.6
Tuberculosis of respiratory system	87.7	87.0	93.4	100.6	103.6	105.6	124.0	141.6	171.2	172.3	172.8	203.0
Cancer, all forms	74.9	71.8	71.5	72.7	72.0	71.7	69.8	67.0	67.2	70.9	70.3	68.0
Diabetes mellitus	17.0	15.5	15.1	16.2	17.2	15.5	14.1	13.4	14.0	15.3	15.9	13.3
Alcoholism	3.7	3.0	2.9	3.0	2.1	.9	.6	1.4	1.8	4.9	5.1	4.0
Cerebral hemorrhage, apoplexy	56.4	54.4	61.1	61.9	62.9	62.1	61.3	59.8	64.0	66.8	68.7	64.2
Diseases of heart	136.0	128.7	125.2	128.7	126.7	117.4	117.0	113.9	141.7	142.0	140.2	141.8
Diarrhea and enteritis	10.5	12.3	11.3	11.1	10.8	14.2	15.8	16.9	23.4	25.5	26.2	28.0
Chronic nephritis (Bright's disease)	74.7	71.2	66.5	69.6	70.3	68.0	70.8	73.5	86.8	95.7	99.0	95.0
Puerperal state, total	15.6	16.9	17.2	17.9	19.0	19.8	23.0	20.0	27.4	18.2	17.6	19.8
Puerperal septicemia	6.0	6.6	6.6	6.9	7.4	8.5	8.6	6.7	7.3	7.5	7.2	8.8
Puerperal albuminuria and convulsions	3.6	3.8	4.3	4.2	4.7	4.9	5.0	4.8	4.9	5.1	5.0	4.7
Accidents of pregnancy	1.7	1.6	1.6	1.8	1.7	1.6	3.1	3.0	6.9	1.6	1.4	1.7
Total external causes	77.0	78.3	76.9	77.8	71.8	72.0	72.0	94.2	128.9	106.7	99.5	97.9
Suicides	7.8	7.0	7.3	7.4	7.5	7.6	6.1	6.8	7.6	9.3	9.8	13.3
Homicides	7.1	7.4	7.2	7.3	6.3	6.7	5.8	6.9	6.2	7.4	6.9	7.2
Accidents, total	62.1	63.9	62.4	63.0	58.0	57.5	59.6	63.8	75.5	76.5	73.2	77.4
Accidental burns	6.1	6.1	6.4	6.3	6.1	6.6	8.1	8.1	9.0	8.9	8.8	8.8
Accidental drowning	6.3	6.5	7.3	6.7	7.3	8.2	6.7	8.6	9.4	8.7	9.7	10.2
Accidental trauma, by fall	7.9	8.1	7.7	8.4	7.3	7.1	7.3	8.0	10.4	11.9	13.1	13.2
Accidental trauma, by machine	1.4	1.3	1.3	1.7	1.6	1.0	1.7	1.6	2.4	2.0	1.7	1.8
Railroad accidents	4.2	4.0	4.0	4.9	4.1	3.9	5.2	5.7	7.8	8.5	7.9	9.5
Auto accidents	17.0	16.8	15.9	15.4	13.6	12.2	11.1	10.7	10.3	9.7	7.4	2.3
All other accidents	19.4	21.2	19.7	19.5	18.0	18.5	19.5	21.2	26.1	26.8	24.6	31.6
War deaths	(1)	(1)	(1)	------	.1	.1	.5	16.6	39.7	13.5	9.6	------
Other diseases and conditions	183.1	183.4	180.9	181.7	185.1	190.5	197.8	193.5	219.7	231.9	243.5	283.5

[1] Death rate less than 0.05 per 100,000.

PROPOSED NEW YORK LAW RELATING TO WATER SUPPLIES

The following article, quoted from the February 7, 1927, issue of the weekly Health News, published by the New York State Department of Health, discusses a proposed law providing that where the State commissioner of health certifies that a public water supply constitutes a menace to public health and recommends emergency measures to be applied to such water supply, failure to carry out such recommendations, or to take other approved steps in lieu thereof, shall constitute presumptive evidence of negligence in the event of action being brought to recover damages for sickness traceable to the use of such water.

The Webb-Lattin water bill, senate print No. 176 and assembly print No. 243, fixing responsibility for failure to take necessary steps to protect public health when a water supply is known to be dangerously polluted, is worthy of thoughtful consideration and active support.

This bill, introduced at the request of the State department of health and entitled "An act to amend the public-health law in relation to emergency recommendations by the commissioner of health affecting a water supply," would add to the public-health law the following section:

"SEC. 88. *Emergency recommendations by commissioner of health.*—When the State commissioner of health, after investigation of the condition of any public water supply used for drinking or other domestic purposes, whether maintained and operated by a municipality, water district, or private corporation, company or individual, shall certify to the board, corporation, company, officer, or person in charge of the maintenance and operation of such water supply that, in his opinion, such water supply is so polluted or subject to pollution as to constitute a menace to the public health and shall recommend emergency measures to be applied to such water supply for the protection of public health, failure on the part of such municipality, water district, or private corporation, company, or individual maintaining and operating such water supply to carry out such emergency recommendations or to take such other steps in lieu thereof as may be approved by the State commissioner of health shall, in the event of action being brought to recover for damages arising from sickness traceable to the use of water from such supply, constitute presumptive evidence of negligence on the part of such municipality, water district, or private corporation, company, or individual."

In view of fairly recent court decisions, there is no doubt but that, when sickness arises or deaths occur as a result of the use of polluted water from a public supply, the municipality or water company and its officials are legally liable if it can be proven that they have been officially warned of the danger to public health and have failed to carry out reasonable recommendations for the abatement of the menace. It is at times difficult, however, to establish the fact that such a warning has been issued and received.

The department has been held to have no power to compel a municipality or water company to act, even in the face of a threatened epidemic. It can only warn and recommend, urging that its recommendations be carried out. Several serious epidemics have occured after such warnings have been issued, the responsible local officials failing to act upon the department's recommendations.

This bill would give the department no new authority, but would make provision for an official certification which would be acceptable as evidence and

would definitely fix responsibility. It would still be necessary in any instance to establish the relationship between the use of the water and the sickness or death attributed to it.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Progress Report on Recent Developments in the Field of Industrial Wastes in Relation to Water Supply. Anon. *Journal American Water Works Association*, vol. 16, No. 3, September, 1926, pp. 302–329. (Abstract by Frank Raab.)

The sources of greatest danger with regard to the pollution of streams which are the sources of public water supplies are mine waters which contain sulphuric acid and trade wastes containing phenols, creosotes, tarry acids, and similar compounds. Pulp-mill wastes, tannery wastes, and canning wastes are also discussed. According to a report of the United States Geological Survey for 1920, there are 2,397 coal mines in operation in Pennsylvania alone. These mines produce 116,000,000 tons of coal annually. It is estimated that these mines dump 9,000,000 tons of sulphuric acid into the streams of that State annually. About 27 per cent of the annual rainfall percolates through the soil and into the mines and is thus pumped out as acid water. Out of 300 mines in Pennsylvania, only four showed a nonacid water. In some mines the water is neutralized with limestone, lime, or marl. The cost of treating all this water before it is turned into the rivers represents an economic problem of serious proportions.

Phenolic wastes.—The Ohio River and its tributaries, owing to the proximity of highly industrialized regions producing coal, steel, coke, and similar products, offers one of the most serious problems of phenolic waste disposal. The discarding of the so-called "bee hive" ovens for modern by-products plants, which make possible the recovery of valuable substances, have greatly intensified the disagreeable taste and odor problem in water supplies taken from the Ohio River. Several methods to eliminate these wastes are discussed. An excess amount of biological material, especially sewage, seems to support a rapid natural oxidizing process. As far as can be determined, no serious and widespread digestive disorders have followed the use of water containing these phenolic compounds. Observations in several cities have demonstrated that rain will bring down from the air whither they have been carried by smoke, sufficient of these compounds into the rivers to produce the characteristic taste and odor when these waters are treated with chlorine. Observations have shown that these tastes always follow heavy rainfall, especially when the rains have been preceded by weeks of bright skies. Reactions producing these tastes and odors do not take place when free ammonia is present in the water, when the water

has not been exposed to the air, or when an unusually large amount of organic matter is present. Chlorinated water should not be exposed to the air if gas works are in the vicinity; neither should it be mixed with water which has thus been exposed. Phenols present in quantities as little as 1 part per billion will produce tastes and odors in water treated with 0.5 p. p. m. of chlorine. Superchlorination and subsequent dechlorination will yield satisfactory results. Potassium permanganate, if added before or after chlorination, is effective. Ammonia, ammonium chloride, and ammonium sulphate proved effective. No economically practical method for treating sulphite mill waste is known at present, but experiments in progress promise results.

Objectives and Standards of Ventilation. C. E.-A. Winslow, Professor of Public Health, Yale School of Medicine, and Chairman, New York State Commission on Ventilation. *Journal American Society of Heating and Ventilating Engineers*, vol. 32, No. 3, March, 1926, pp. 113–152. (Abstract by Dana E. Kepner.)

"The science of ventilation, as it has been understood by the engineering profession from the time of Billings and Woodbridge almost to the present day, has been based on the conceptions of the German hygienist, von Pettenkofer, who, in 1862, first clearly enunciated the view that the evil effects of the air of a badly ventilated room were due to alleged organic poisons excreted into the atmosphere from the human body, and that the object of ventilation was the removal of these poisons by dilution with fresh air." To Pettenkofer, carbonic acid was of significance as an indirect measure of the presence of morbific matter; and from his assumption that air containing more than a certain amount of carbon dioxide was bad, the common standard of 30 cubic feet of air supplied per person per minute was derived. This is the amount of fresh air containing 3 parts of CO_2 per 10,000 necessary to keep the CO_2 in an occupied space from rising above 6 parts per 10,000. This standard has been embodied in many State laws and city ordinances.

The findings of the New York State Commission on Ventilation, after considerable research, confirmed by other investigators, have shown the requisites for maximum comfort and efficiency of occupants to be "* * * air which has a temperature of 66–68° F., with a moderate relative humidity and a moderate, but not excessive, degree of air movement." These requisites, it is stated, can be secured as well, if not better, by window ventilation with gravity exhaust duct near the ceiling than by positive plenum systems. Because of the smaller cost, the former is advocated.

A resolution unanimously adopted by the American Public Health Association at the 1925 annual meeting in St. Louis, is as follows:

Whereas hundreds of thousands of dollars are wasted every year on this continent in the installation and operation of systems of school ventilation which are

not only not beneficial but are positively harmful to the health of school children; and

Whereas, in the light of current knowledge, the supply of as large an air volume in schoolrooms as 30 cubic feet per minute per capita is necessarily accompanied with dangerous overheating of the schoolroom in order to avoid resulting drafts; and

Whereas the use of ozone and other chemicals for treating schoolroom air has little or no scientific justification and little or no practical value: Therefore be it

Resolved, That the system of ventilating schoolrooms by fresh, untreated, outdoor air, admitted at the windows with gravity exhaust ducts for removing vitiated air from near the ceiling, is the most generally satisfactory method of school ventilation; and be it

Resolved, That we recommend that State laws and city regulations interfering with such scientific and economical methods of school ventilation should be repealed in the interest of the public health.

(Abstractor's note: Following the presentation of this paper 11 persons, presumably all members of the American Society of Heating and Ventilating Engineers, discussed the subject, definitely and positively objecting to the advantage of the window ventilation method, none of whom, however, based his objections on scientific facts. Doctor Fronczak, health commissioner of Buffalo, supported the window ventilation method. After Doctor Winslow had closed the discussion, several resolutions were presented and presumably adopted soliciting the cooperation of the American Public Health Association in the study of this matter, but definitely disagreeing with any suggestion that any consistent ventilation can be obtained by air admission through windows with gravity vent flues.)

School Sanitation from the Standpoint of the School Administrator. John R. McLure, professor of educational administration, University of Alabama. *American Journal of Public Health,* Vol. XVI, No. 9, September, 1926, pp. 887–892. (Abstract by H. N. Old.)

The author opens his discussion by stating the needs of the subject as follows: First, a program that has been developed and tested on a strictly scientific basis; second, a type of school organization and control that makes possible successful and efficient results with the total school population in the entire area concerned; and, third, an adequate system of school revenues that makes possible the financing of a complete and equal program for all school children.

While the title of this paper and the detailing of the needs as above would indicate the treatment of general school sanitation, it is found that it is mainly a discussion of school ventilation. The author treats most convincingly of the fallacy of the "30 cubic feet per minute per pupil" theory, which is the basis of nearly all State regulations concerning school ventilation.

The mechanical system of ventilation is contrasted with that of the gravity system and it is stated that "compliance with ventilation laws and regulations now discredited by scientific research is costing taxpayers, chiefly in our cities and towns, millions of dollars annually.

Millions of dollars from bond issues and tax levies have been translated into idle, semi-idle, and useless mechanical ventilation devices and paraphernalia. The conclusion is inevitable. Mechanical ventilation has not worked."

The desirable type of organization and control of the school system is discussed, and especially the importance of abandoning the small one-teacher schools or school districts where it is economically impossible to provide proper sanitation in favor of the larger consolidated or county-unit districts.

The paper concludes by a brief reference to the necessity for an adequate system of school revenues, in which it is stated that "more and more the revenues must come from State rather than local taxes," in order that poorer counties or districts may have educational facilities comparable to those furnished the more fortunate districts.

Light and Health. Ernest W. J. Hague, chief health inspector, Winnipeg, Manitoba. *Public Health Journal* (Canada), vol. 17, No. 10, October, 1926, pp. 503–508. (Abstract by Dana E. Kepner.)

In the earliest period of medical science the old Greek physicians advocated the use of sunlight as a curative agent, but this necessity of light to man has been lost sight of somewhat through the following centuries. Recent experiments by many investigators have demonstrated the great value of sunlight, particularly the ultra-violet rays. Excessive smoke in our cities and lack of adequate sunlight in homes and workshops are robbing many persons of this natural benefit. Sanitary inspectors should spread the gospel of the necessity of sunshine to the human race by advocating: (1) Clear atmosphere for our cities and towns; (2) the abolition of dark rooms in dwellings and workshops; (3) the use of a window glass which will permit the passage of ultra-violet rays; (4) the inculcating in the minds of the people the necessity for adequate sunlight and the promotion of such habits of life as will insure that every person shall receive his daily quota of the life-giving beams.

The Bacteriological Examination of Milk from Breconshire and Radnorshire. D. M. Evans and R. O. Davies (*Welsh Jour. Agr.*, 2 (1926), pp. 168–180). From *Experiment Station Record*, U. S. Dept. of Agriculture, vol. 55, No. 6, October, 1926, p. 572.

"The amount of dirt, bacterial content, contamination with *Bacillus coli*, keeping quality, methylene blue reduction test, and the relation of various conditions to the bacterial content were determined at 14-day intervals in the milk from 11 different dairies in a clean-milk competition.

"The studies of the keeping quality show that the morning's milk possessed better keeping qualities, although it also contained more bacteria per cubic centimeter, due to the differences in the tempera-

tures and the time over which the morning and evening milk was held.

"Much difference was found in the bacterial counts of the samples from the dairies and the samples of ordinary retail milk, the latter containing an average of over 100 times the count of the former samples. All of the retail samples contained *B. coli*, and in 80 per cent they were present in 0.001 c. c. *B. coli* were absent from many or present in only a very small proportion of the farm samples.

"Where the milking utensils were steamed there was greater freedom from *B. coli* and longer keeping quality, although the bacterial content was not as low as where the utensils were boiled or scalded. The methods of feeding and the use of small-top pails for milking as compared with large-top pails were found to affect the bacterial content materially."

Farm Water Supply and Sewage Disposal in West Virginia. F. D. Cornell, jr., Agricultural Experiment Station, College of Agriculture, West Virginia University, Bulletin 206, May, 1926, pp. 1–27. (Abstract by Fred Almquist.)

The need for educating farmers to the importance of sanitation is very great. Many practices now in use on farms are insanitary and dangerous, such as allowing chickens to clean closets, leaving closets open and the filth exposed, together with many other such practices. It is estimated that three out of every four wells are polluted. It is also important from an economic standpoint in that it costs a farmer from $300 to $500 for a case of typhoid.

With a view of ascertaining the importance of farm sanitation, three typical farm counties of West Virginia were surveyed with regard to water supply and sanitation. Of 287 farms, only 13 had running water in the house, 4 had pumps in the kitchen, and the others carried water from the outside.

One hundred and twenty-four of the 287 farms visited had open privies, 90 had surface privies closed in the back, and 21 had no privies at all.

A complete description of the survey, with detailed tables and graphs, is given. The survey shows the need of farm sanitation and the negligence of the farmers of West Virginia, many of whom, with a minimum of work and expense, could have running water and sanitary conveniences.

INFANT MORTALITY IN NEW HAVEN, CONN.—A CORRECTION

The infant mortality figures for New Haven, Conn., which appeared in the table printed on page 252 of PUBLIC HEALTH REPORTS for January 28, 1927, were incorrect. Dr. Dwight M. Lewis states that the number of deaths under 1 year of age for New Haven during 1926 was 197 instead of 297. This makes the infant mortality rate 52 instead of 79.

DEATHS DURING WEEK ENDED FEBRUARY 12, 1927

Summary of information received by telegraph from industrial insurance companies for week ended February 12, 1927, and corresponding week of 1926. (From the Weekly Health Index, February 17, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 12, 1927	Corresponding week, 1926
Policies in force	66, 705, 342	63, 364, 512
Number of death claims	12, 300	10, 851
Death claims per 1,000 policies in force, annual rate	9. 6	8. 9

Deaths from all causes in certain large cities of the United States during the week ended February 12, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, February 17, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 12, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 12, 1927 [2]
	Total deaths	Death rate [1]		Week ended Feb. 12, 1927	Corresponding week, 1926	
Total (67 cities)	7,551	13.3	14.5	838	896	[3] 73
Akron	50			12	6	129
Albany [4]	47	20.4	22.8	2	3	42
Atlanta	67			2	14	
White	36			1	4	
Colored	31	(5)		1	10	
Baltimore [4]	235	15.0	24.3	27	41	83
White	171		21.0	17	29	66
Colored	64	(5)	43.8	10	12	156
Birmingham	50	12.1	17.1	8	5	
White	26		13.0	2	3	
Colored	24	(5)	23.2	6	2	
Boston	244	16.0	14.2	42	26	117
Bridgeport	29			5	8	93
Buffalo	169	16.0	14.6	16	14	67
Cambridge	36	15.1	15.0	5	4	89
Camden	33	12.9	12.7	5	6	86
Canton	31	14.3	15.2	2	4	47
Chicago [4]	739	12.4	11.5	95	83	83
Cincinnati	133	16.8	19.2	14	16	87
Cleveland	212	11.2	11.8	27	32	71
Columbus	71	12.7	14.3	9	7	84
Dallas	40	10.0	15.4	6	5	
White	32		13.6	5	1	
Colored	8	(5)	27.0	1	4	
Dayton	49	14.2	8.8	7	5	115
Denver	74	13.3	19.2	3	10	
Des Moines	29	10.1	11.4	2	1	33
Detroit	288	11.3	13.2	52	55	82
Duluth	16	7.3	11.1	1	4	22
El Paso	20	9.1	23.4	2	8	
Erie	30			5	3	98
Fall River [4]	28	11.0	15.1	2	2	35
Flint	34	12.4	7.3	10	3	163
Fort Worth	26	8.3	13.8	3	3	
White	24		11.5	2	2	
Colored	2	(5)	30.2	1	1	
Grand Rapids	35	11.5	11.7	6	5	88
Houston	61			4	9	
White	32			3	5	
Colored	29	(5)		1	4	
Indianapolis	117	16.3	15.2	9	10	71
White	106		14.7	8	10	72
Colored	11	(5)	19.0	1	0	61

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Feb. 11, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended February 12, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Feb. 12, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 12, 1927
	Total deaths	Death rate		Week ended Feb. 12, 1927	Corresponding week, 1926	
Jersey City	77	12.5	17.1	6	10	45
Kansas City, Mo	86	11.7	13.9	4	15	----------
Los Angeles	239	----------	----------	21	70	60
Louisville	89	14.5	12.7	5	9	43
White	65	----------	11.1	3	8	29
Colored	24	(5)	22.2	2	1	140
Lowell	28	13.2	11.8	1	3	19
Lynn	24	11.9	11.5	4	2	106
Memphis	57	16.6	20.9	6	6	----------
White	33	----------	19.2	3	3	----------
Colored	24	(5)	24.0	3	3	----------
Milwaukee	127	12.6	11.9	20	11	93
Minneapolis	92	10.9	10.2	7	12	39
Nashville [4]	13	16.2	14.1	2	6	----------
New Bedford	41	17.9	10.9	3	5	52
New Haven	53	14.9	14.9	7	7	98
New Orleans	156	19.2	36.1	13	35	----------
White	95	----------	32.1	5	19	----------
Colored	61	(5)	47.4	8	16	----------
New York	1,485	13.0	14.1	147	171	61
Bronx Borough	164	9.2	10.5	10	18	32
Brooklyn Borough	509	11.7	12.6	63	[illegible]	65
Manhattan Borough	622	17.9	18.9	58	66	68
Queens Borough	173	9.9	[illegible]	11	19	60
Richmond Borough	37	13.1	22.2	2	5	37
Newark, N. J	100	11.2	13.5	25	12	124
Norfolk	45	13.1	9.3	3	1	61
White	20	----------	8.5	0	1	0
Colored	25	(5)	10.8	3	0	159
Oakland	64	12.5	12.6	13	9	152
Oklahoma City	26	----------	----------	0	3	----------
Omaha	49	11.7	11.6	5	6	56
Paterson	35	12.7	12.4	4	5	71
Philadelphia	[illegible]	15.2	14.6	58	57	77
Pittsburgh	172	13.9	13.4	21	24	84
Portland, Oreg	75	----------	----------	5	3	53
Providence	60	11.1	13.8	12	12	102
Richmond	51	14.7	21.6	4	5	53
White	35	----------	20.6	4	3	81
Colored	16	(5)	31.1	0	2	0
Rochester	85	[illegible]	11.2	7	6	59
St. Louis	206	12.8	14.2	13	20	----------
St. Paul	50	11.7	11.6	4	3	36
Salt Lake City [4]	58	14.6	25.5	8	7	122
San Antonio	58	14.3	21.6	11	15	----------
San Diego	41	18.6	17.1	1	2	21
San Francisco	157	14.2	14.9	5	3	31
Schenectady	21	11.8	13.5	5	2	149
Seattle	82	----------	----------	2	2	[illegible]
Somerville	22	11.2	10.4	4	3	[illegible]
Spokane	39	18.7	15.8	1	3	25
Springfield, Mass	35	12.4	12.9	4	2	62
Syracuse	50	13.2	13.0	15	7	193
Tacoma	20	9.7	11.8	1	3	24
Toledo	81	13.9	14.5	6	9	58
Trenton	38	14.5	17.9	5	9	87
Utica	32	16.2	14.7	2	1	46
Washington, D. C	149	14.4	16.4	7	8	40
White	98	----------	14.0	5	2	42
Colored	51	(5)	23.4	2	6	37
Waterbury	17	----------	----------	4	5	94
Wilmington, Del	23	9.5	11.4	3	3	74
Worcester	54	14.4	12.7	6	3	72
Yonkers	24	10.5	12.6	2	4	45
Youngstown	35	10.8	10.1	0	8	0

[4] Deaths for week ended Friday, Feb. 11, 1927.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk, 38; Richmond, [illegible]; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended February 19, 1927

ALABAMA

	Cases
Chicken pox	46
Diphtheria	60
Influenza	61
Malaria	27
Measles	181
Mumps	15
Ophthalmia neonatorum	2
Pellagra	5
Pneumonia	50
Scarlet fever	15
Smallpox	46
Tuberculosis	156
Typhoid fever	41
Whooping cough	53

ARIZONA

	Cases
Cerebrospinal meningitis	1
Chicken pox	13
Diphtheria	1
Measles	5
Scarlet fever	4
Smallpox	1
Tuberculosis	9
Typhoid fever	3
Whooping cough	1

ARKANSAS

	Cases
Chicken pox	25
Diphtheria	7
Influenza	74
Malaria	5
Measles	23
Mumps	36
Pellagra	1
Scarlet fever	11
Smallpox	2
Trachoma	1
Tuberculosis	5
Typhoid fever	2
Whooping cough	36

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Alturas	1
Glendale	1
Los Angeles	3
Los Angeles County	2
Sacramento	1
Diphtheria	133
Influenza	55
Lethargic encephalitis	1
Measles	2,587
Mumps	227
Poliomyelitis—San Francisco	1
Scarlet fever	268
Smallpox	31
Tuberculosis	178
Typhoid fever	3
Whooping cough	88

COLORADO [1]

	Cases
Cerebrospinal meningitis	2
Chicken pox	50
Diphtheria	20
German measles	15
Impetigo contagiosa	5
Influenza	2
Measles	306
Mumps	15
Pneumonia	5
Poliomyelitis	1
Scarlet fever	343
Septic sore throat	1
Smallpox	20
Tuberculosis	52
Typhoid fever	1
Whooping cough	1

CONNECTICUT

	Cases
Cerebrospinal meningitis	2
Chicken pox	88

[1] Report for 2 weeks.

CONNECTICUT—continued

	Cases
Diphtheria	41
German measles	58
Influenza	14
Malaria	1
Measles	89
Mumps	31
Pneumonia (broncho)	41
Pneumonia (lobar)	41
Scarlet fever	118
Septic sore throat	6
Tuberculosis (all forms)	49
Typhoid fever	3
Whooping cough	49

DELAWARE

Measles	7
Mumps	1
Pneumonia	2
Scarlet fever	58
Tuberculosis	5
Whooping cough	8

FLORIDA

Chicken pox	70
Diphtheria	17
Influenza	7
Malaria	1
Measles	93
Mumps	9
Scarlet fever	14
Smallpox	45
Tuberculosis	11
Typhoid fever	9
Whooping cough	10

GEORGIA

Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	60
Conjunctivitis (infectious)	4
Diphtheria	15
Dysentery	1
Hookworm disease	2
Influenza	90
Malaria	18
Measles	64
Mumps	27
Pneumonia	27
Scarlet fever	16
Septic sore throat	27
Smallpox	100
Tuberculosis	6
Typhoid fever	4
Whooping cough	17

IDAHO

Cerebrospinal meningitis:	
Pocatello	1
St. Maries	1
Chicken pox	5
Diphtheria	2
Measles	101
Mumps	14
Pneumonia	1
Scarlet fever	34

IDAHO—continued

	Cases
Smallpox	4
Typhoid fever	3
Whooping cough	6

ILLINOIS

Cerebrospinal meningitis:	
Alexander County	1
Morgan County	1
Sangamon County	1
Chicken pox	412
Diphtheria	141
Influenza	59
Lethargic encephalitis	3
Measles	2,340
Mumps	513
Pneumonia	450
Poliomyelitis:	
Henry County	1
McHenry County	1
Scarlet fever	432
Smallpox	21
Tuberculosis	454
Typhoid fever	19
Whooping cough	228

INDIANA

Cerebrospinal meningitis	1
Chicken pox	228
Diphtheria	56
Influenza	78
Measles	236
Mumps	2
Pneumonia	9
Scarlet fever	317
Smallpox	150
Tuberculosis	32
Typhoid fever	2
Whooping cough	63

IOWA

Chicken pox	43
Diphtheria	24
Measles	729
Mumps	10
Scarlet fever	90
Smallpox	1
Tuberculosis	7
Whooping cough	11

KANSAS

Cerebrospinal meningitis:	
Beloit	1
Coffeyville	1
Horton	1
Ottawa	1
Tampa	1
Chicken pox	145
Diphtheria	11
German measles	5
Influenza	36
Measles	795
Mumps	52
Pneumonia	68
Scarlet fever	210
Smallpox:	
Topeka	18
Scattering	52

KANSAS—continued

	Cases
Tetanus	2
Tuberculosis	39
Typhoid fever	3
Whooping cough	44

LOUISIANA

Cerebrospinal meningitis	1
Diphtheria	26
Influenza	7
Measles	141
Paratyphoid fever	1
Pneumonia	24
Poliomyelitis	1
Scarlet fever	9
Smallpox	6
Tuberculosis	42
Typhoid fever	5

MAINE

Chicken pox	42
Diphtheria	2
German measles	44
Influenza	6
Measles	192
Mumps	11
Pneumonia	25
Poliomyelitis	1
Scarlet fever	37
Tuberculosis	10
Vincent's angina	1
Whooping cough	53

MARYLAND [3]

Cerebrospinal meningitis	2
Chicken pox	146
Diphtheria	56
Dysentery	2
German measles	3
Influenza	162
Measles	30
Mumps	35
Paratyphoid fever	1
Pneumonia (broncho)	61
Pneumonia (lobar)	54
Poliomyelitis	1
Scabies	5
Scarlet fever	94
Septic sore throat	7
Smallpox	1
Tuberculosis	58
Typhoid fever	14
Vincent's angina	3
Whooping cough	96

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	256
Conjunctivitis (suppurative)	10
Diphtheria	91
German measles	13
Influenza	14
Measles	154
Mumps	385
Ophthalmia neonatorum	30
Pneumonia (lobar)	114

[3] Week ended Friday.

MASSACHUSETTS—continued

	Cases
Scarlet fever	516
Septic sore throat	6
Trachoma	1
Tuberculosis (pulmonary)	135
Tuberculosis (other forms)	26
Typhoid fever	4
Whooping cough	146

MICHIGAN

Diphtheria	130
Measles	277
Pneumonia	211
Scarlet fever	364
Smallpox	56
Tuberculosis	153
Typhoid fever	12
Whooping cough	181

MINNESOTA

Actinomycosis	1
Cerebrospinal meningitis	1
Chicken pox	133
Diphtheria	31
Influenza	3
Lethargic encephalitis	1
Measles	301
Pneumonia	3
Poliomyelitis	1
Scarlet fever	225
Smallpox	12
Tuberculosis	55
Typhoid fever	4
Whooping cough	22

MISSISSIPPI

Diphtheria	11
Scarlet fever	21
Smallpox	4
Typhoid fever	2

MISSOURI

(Exclusive of Kansas City)

Chicken pox	56
Diphtheria	60
Epidemic sore throat	2
Influenza	8
Measles	212
Mumps	78
Pneumonia	2
Scarlet fever	102
Smallpox	5
Tuberculosis	48
Typhoid fever	2
Whooping cough	41

MONTANA

Cerebrospinal meningitis	2
Chicken pox	26
Diphtheria	5
Measles	77
Mumps	11
Poliomyelitis	1
Scarlet fever	76
Smallpox	3
Tuberculosis	3
Typhoid fever	1

NEBRASKA

	Cases
Chicken pox	55
Diphtheria	5
German measles	52
Influenza	1
Measles	105
Mumps	30
Pneumonia	1
Scarlet fever	65
Smallpox	8
Typhoid fever	1
Whooping cough	23

NEW JERSEY

	Cases
Cerebrospinal meningitis	3
Chicken pox	256
Diphtheria	135
Influenza	41
Measles	64
Pneumonia	173
Poliomyelitis	1
Scarlet fever	423
Typhoid fever	6
Whooping cough	304

NEW MEXICO

	Cases
Chicken pox	52
Conjunctivitis	5
Diphtheria	1
German measles	70
Influenza	2
Measles	72
Mumps	53
Pneumonia	16
Scarlet fever	28
Smallpox	4
Tetanus	1
Tuberculosis	33
Typhoid fever	1
Whooping cough	7

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	465
Diphtheria	107
German measles	222
Measles	968
Mumps	465
Ophthalmia neonatorum	2
Pneumonia	373
Poliomyelitis	1
Scarlet fever	391
Septic sore throat	4
Smallpox	6
Tetanus	1
Typhoid fever	12
Vincent's angina	11
Whooping cough	334

NORTH CAROLINA

	Cases
Chicken pox	231
Diphtheria	29
German measles	22
Measles	475
Poliomyelitis	3
Scarlet fever	45
Septic sore throat	4
Smallpox	71
Typhoid fever	9
Whooping cough	611

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Garfield County	1
Chicken pox	126
Diphtheria	18
Influenza	274
Measles	252
Mumps	39
Pneumonia	76
Poliomyelitis—Hughes County	1
Scarlet fever	51
Smallpox	34
Typhoid fever	17
Whooping cough	20

OREGON

	Cases
Chicken pox	40
Diphtheria	10
Influenza	460
Measles	87
Mumps	23
Pneumonia	[1]14
Puerperal septicemia	1
Scarlet fever	57
Septic sore throat	1
Smallpox:	
Douglas County	11
Klamath County	18
Scattering	18
Tuberculosis	15
Typhoid fever	9
Whooping cough	6

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Fayette County	1
Chicken pox	861
Diphtheria	211
German measles	53
Impetigo contagiosa	15
Measles	907
Mumps	356
Ophthalmia neonatorum	4
Pneumonia	212
Scabies	5
Scarlet fever	651
Tuberculosis	138
Typhoid fever	14
Whooping cough	392

SOUTH CAROLINA

	Cases
Chicken pox	80
Dengue	2
Diphtheria	16
Hookworm disease	30
Influenza	636
Malaria	87
Measles	34

[1] Deaths.

SOUTH CAROLINA—continued

	Cases
Paratyphoid fever	2
Pellagra	34
Scarlet fever	8
Smallpox	13
Tuberculosis	40
Typhoid fever	2
Whooping cough	75

SOUTH DAKOTA

Chicken pox	18
Influenza	1
Measles	148
Mumps	3
Pneumonia	2
Scarlet fever	65
Smallpox	5
Tuberculosis	1
Whooping cough	3

TENNESSEE

Cerebrospinal meningitis—Nashville	2
Chicken pox	57
Diphtheria	9
Influenza	58
Lethargic encephalitis—Nashville	1
Malaria	3
Measles	80
Mumps	6
Ophthalmia neonatorum	1
Pellagra	1
Pneumonia	44
Scarlet fever	12
Smallpox	7
Tetanus	1
Tuberculosis	28
Typhoid fever	8
Whooping cough	74

TEXAS

Cerebrospinal meningitis	1
Chicken pox	107
Diphtheria	56
Influenza	17
Measles	129
Mumps	36
Pneumonia	20
Scarlet fever	71
Smallpox	53
Tuberculosis	33
Typhoid fever	8
Whooping cough	20

UTAH

Cerebrospinal meningitis—Salt Lake City	1
Chicken pox	27
Diphtheria	11
German measles	31
Influenza	5
Measles	547
Mumps	18
Pneumonia	3
Scarlet fever	25
Smallpox	1
Whooping cough	9

VERMONT

Chicken pox	20
Measles	85
Mumps	27
Scarlet fever	7
Typhoid fever	3
Whooping cough	15

VIRGINIA

	Cases
Cerebrospinal meningitis—Henry County	1

WASHINGTON

Cerebrospinal meningitis:	
Asotin County	1
Chelan County	2
Spokane	3
Tacoma	1
Chicken pox	84
Diphtheria	24
German measles	162
Influenza	2
Measles	173
Mumps	104
Pneumonia	1
Poliomyelitis	1
Scarlet fever	105
Septic sore throat	2
Smallpox	47
Trachoma	1
Tuberculosis	4
Typhoid fever	1
Whooping cough	18

WEST VIRGINIA

Diphtheria	35
Influenza	50
Measles	113
Scarlet fever	33
Smallpox	23
Tuberculosis	8
Typhoid fever	13
Whooping cough	142

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	98
Diphtheria	34
German measles	2
Influenza	3
Measles	58
Mumps	65
Pneumonia	16
Scarlet fever	37
Tuberculosis	20
Whooping cough	48
Scattering:	
Chicken pox	194
Diphtheria	15
German measles	47
Influenza	95
Measles	709
Mumps	122
Pneumonia	14
Scarlet fever	198
Smallpox	23
Tuberculosis	24
Typhoid fever	4
Whooping cough	118

WYOMING

Chicken pox	1
Diphtheria	1
German measles	38
Measles	239
Mumps	25
Scarlet fever	19

Reports for Week Ended February 12, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	94
Diphtheria	25
Influenza	12
Lethargic encephalitis	3
Measles	3
Pellagra	1
Pneumonia	32
Scarlet fever	18
Tuberculosis	26
Typhoid fever	1
Whooping cough	16

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	4
Diphtheria	3
Influenza	4
Measles	131
Mumps	2
Pneumonia	6
Scarlet fever	58
Smallpox	11
Typhoid fever	2
Whooping cough	6

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January, 1927										
Florida	2	179	51	37	78	3	5	97	169	52
Georgia	3	175	626	55	303	12	1	94	385	38
Iowa	1	139			1,179		2	310	45	1
Michigan	0	496	29		526		8	1,435	175	26
North Dakota	3	24	11		513		1	295	33	1

January, 1927

	Cases
Anthrax:	
Georgia	1
Chicken pox:	
Florida	143
Georgia	162
Iowa	252
Michigan	1,234
North Dakota	91
Conjunctivitis (infectious):	
Georgia	1
Dengue:	
Florida	1
Georgia	1
Dysentery:	
Florida	11
Georgia	5
German measles:	
Iowa	5
North Dakota	1
Hookworm disease:	
Florida	75
Georgia	5
Lethargic encephalitis:	
Florida	1
Georgia	1
Michigan	4
North Dakota	2

January, 1927—Continued

	Cases
Mumps:	
Florida	31
Georgia	75
Iowa	57
Michigan	325
North Dakota	14
Paratyphoid fever:	
Florida	1
Septic sore throat:	
Georgia	54
Michigan	21
Tetanus:	
Florida	18
Georgia	3
Trachoma:	
North Dakota	4
Tularaemia:	
Iowa	1
Typhus fever:	
Georgia	2
Vincent's angina:	
Iowa	1
Whooping cough:	
Florida	32
Georgia	160
Iowa	48
Michigan	564
North Dakota	16

INFLUENZA IN THE UNITED STATES

The following table gives a comparison of the numbers of cases of influenza reported by State health officers during the fifth and sixth weeks of the years 1925, 1926, and 1927. This table is a continuation of the table for the first four weeks of these years which was printed in the PUBLIC HEALTH REPORTS of February 18, 1927, page 503.

Influenza cases reported by State health officers for the fifth and sixth weeks of 1925, 1926, and 1927

State	Week ended—					
	Feb. 7, 1925	Feb. 6, 1926	Feb. 5, 1927	Feb. 14, 1925	Feb. 13, 1926	Feb. 12, 1927
Alabama	643	311	74	758	688	131
Arkansas	337	248	105	245	231	99
California	65	525	40	77	179	101
Connecticut	6	13	11	21	9	5
Delaware	0	4	6	8	2	1
District of Columbia	3	10	2	3	12	12
Florida	15	38	11	55	26	18
Georgia	183	850	171	956	1,045	174
Illinois	33	72	66	33	41	37
Indiana	121	44	51	101	77	44
Kansas	8	16	7	21	53	2
Louisiana	50	261	13	56	357	41
Maine	10	6	25	11	33	12
Maryland	113	1,094	69	130	776	63
Massachusetts	62	13	21	89	12	17
Minnesota	3	1	0	0	3	5
Missouri	41	2	8	22	9	11
Montana	0	0	0	0	2	0
Nebraska	30	0	20	0	14	25
New Jersey	20	38	37	20	41	31
New Mexico[1]	18	205	0	45	368	5
Oklahoma[1]	433	569	299	456	664	238
Oregon	5	87	180	0	191	331
South Carolina	(2)	1,931	684	(2)	(2)	1,363
Tennessee	(2)	158	93	(2)	185	70
Texas	4,603	106	174	4,961	634	70
Utah	(2)	224	2	(2)	79	3
Wisconsin	59	35	54	83	47	131
Wyoming	1	5	1	0	0	1

[1] Exclusive of Oklahoma City and Tulsa. [2] No report.

DEATHS FROM INFLUENZA AND PNEUMONIA IN LARGE CITIES

The Bureau of the Census, Department of Commerce, has issued the following table, which gives the deaths from influenza and pneumonia in 78 large cities of the United States from January 2 to February 12, 1927.

The table shows that in these cities the number of deaths from influenza was increasing during the six-week period, but the number of deaths from pneumonia decreased.

Deaths reported from influenza and pneumonia

City	Influenza						Pneumonia					
	For week ended January—				For week ended February—		For week ended January—				For week ended February—	
	8	15	22	29	5	12	8	15	22	29	5	12
Total	106	106	107	118	113	158	1,226	1,150	1,122	1,008	1,075	922
Akron		2					7	3	5	6	6	12
Albany	2	0	0	1	0	0	10	8	7	10	10	2
Atlanta					2	3	16	10	16	6	12	2
Baltimore	2	5	4	6	5	2	33	38	58	38	54	34
Birmingham	15	1	7	12	5	3	6	8	9	8	10	4
Boston	1	0	0	1	1	1	34	42	38	21	28	28
Bridgeport	4	3	0	1	0	0	4	5	5	5	5	6
Buffalo							26	14	22	20	17	18
Cambridge					0		4	4	2	8	4	5
Camden					1	1	3	4	2	2	1	5
Canton					1	2	1	3	5	6	2	3
Chicago	10	10	14	18	7	11	91	95	83	68	69	74
Cincinnati					2	6	27	13	12	19	12	11
Cleveland	2	2	5	1	1	3	29	25	15	16	18	6
Columbus	2	1	4	0	1	1	5	12	8	8	4	5
Dallas	1	3	2	3	2	4	5	5	4	5	4	3
Dayton					0	0	6	3	10	8	5	8
Denver						6	23	10	11	13	7	4
Des Moines					0		4	6	1	4	1	
Detroit	4	5	7	5	1	7	36	40	28	42	28	31
Duluth	0	0	0	0	0	0	2	3	4	3	5	0
El Paso	2	3	4	2	1	0	3	4	7	1	1	3
Erie		3	3	3			4	4	2	2	6	3
Fall River					0		6	4	3	4	5	0
Flint					0	1	5	1	5	4	4	5
Fort Worth					1	0	2	4	2	7	6	5
Grand Rapids	0	2	1	0	0	1	5	2	6	2	2	4
Houston					0	1	10	9	6	6	7	6
Indianapolis						1	15	13		11	14	14
Jersey City	0	1	1	1	1	1	12	16	10	10	9	11
Kansas City, Kans	0	2	0				8	3	4	6	4	
Kansas City, Mo	4	1	1	0	4	1	15	16	12	14	16	11
Los Angeles						4	37	38	25	22	17	18
Louisville					0	0	18	9	25	12	13	8
Lowell					0	0	4	4	3	0	4	3
Lynn					0	0	5	4	1	3	4	3
Memphis	1	2		1	4		7	9	6	6	7	
Milwaukee					1	1	16	19	22	14	17	13
Minneapolis					2	0	15	12	9	12	12	10
Nashville					1	3	7	9	5	10	8	3
New Bedford					1		4	5	7	4	6	4
New Haven					0	0	8	13	6	10	12	5
New Orleans	6	6	6	10	9	3	17	15	22	22	19	19
New York	22	26	25	23	20	22	231	249	221	189	225	230
Newark, N. J					2	0	18	14	18	14	14	8
Norfolk							6	8	9	2	3	10
Oakland						1	11	10	3	5	5	9
Oklahoma City						1	6	5	3	11	5	5
Omaha							6	9	5	3	7	2
Paterson						2	5	9	4	7	8	3
Philadelphia	4	8	7	14	10	18	72	79	81	59	80	61
Pittsburgh	7	4	3	3	3	10	39	39	35	44	41	20
Portland, Oreg	0	0	0	1	1	5	8	9	12	10	13	13
Providence					1	0	4	6	9	4	9	8
Richmond	1	0	2	3	2	4	7	5	7	3	6	4
Rochester					0	2	6	4	8	8	7	8
St. Louis					1	2	22	18	25	33	12	16
St. Paul		2	0	0	0	3	4	9	7	9	10	5
Salt Lake City						1	9	6	5	3	7	7
San Antonio							12	6	7	12	6	
San Diego	1	0	0	0	3	1	3	7	4	5	3	1
San Francisco	1	1	2	0	3	2	20	13	18	8	17	17
Schenectady							5	2	0	1	1	0
Seattle	5	1	1	1	2	5	8	4	3	3	4	7
Somerville					0		3	4	6	2	2	1
Spokane	0	2	0	2	3	4	9	1	2	3	5	
Springfield, Mass	0	0	1	0	0	0	2	4	4	2	5	5
Syracuse					1	0	16	7	6	8	5	2
Tacoma	0	0	0				7	1	3	0	5	
Toledo	1	3	1	2	1	0	10	8	13	9	10	9
Trenton	1	0	1	0	3	1	9	5	9	4	7	2
Utica					1	0	3	5	2	5	8	5
Washington, D. C	4	4	4	3	2	7	29	20	27	23	20	12

Deaths reported from influenza and pneumonia—Continued

City	Influenza						Pneumonia					
	For week ended January—				For week ended February—		For week ended January—				For week ended February—	
	8	15	22	29	5	12	8	15	22	29	5	12
Waterbury	2	3	1	0	0	0	1	1	4	1	2	2
Wilmington, Del	1	0	0	0	0	0	8	6	5	5	7	5
Worcester						0	14	6	10	6	7	10
Yonkers	0	0	0	1	0	0	6	3	5	6	1	2
Youngstown					0	0	12	4	9	3	13	4

Blank spaces indicate that no report has been received.

PLAGUE PREVENTION WORK IN THE UNITED STATES

Los Angeles—California.—The rodent division of the Los Angeles Department of Health reports that during the 21 weeks from September 13, 1926, to February 5, 1927, 8,790 rodents (rats, mice, and ground squirrels) were examined for plague infection. Two rats were found to be plague-infected, one caught December 11, 1926, and one caught January 24, 1927.

Seattle—Washington.—Reports of the work conducted by the United States Public Health Service and the city health department of Seattle for the five weeks ended January 29, 1927, show that 900 rats and mice were examined and none found to be plague-infected.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the 95 cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 5, 1927, February 6, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,498	2,155	
100 cities	779	1,156	1,011
Measles:			
40 States	15,679	12,122	
100 cities	8,648	3,321	
Poliomyelitis:			
43 States	28	13	
Scarlet fever:			
43 States	4,766	6,469	
100 cities	1,739	2,387	1,363
Smallpox:			
43 States	1,114	1,374	
100 cities	275	148	129
Typhoid fever:			
43 States	221	208	
100 cities	43	43	42
Deaths reported			
Influenza and pneumonia:			
95 cities	1,372	1,088	

City reports for week ended February 5, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	11	1	0	0	0	2	1	5
New Hampshire:									
Concord	22,546	0	0	0	0	0	87	0	0
Manchester	83,097	0	2	0	0	0	3	0	2
Vermont:									
Barre	10,008	1	0	0	0	0	20	0	0
Massachusetts:									
Boston	779,620	90	65	39	9	1	43	90	28
Fall River	128,993	9	6	3	1	0	0	5	0
Springfield	142,065	3	3	1	3	0	0	0	4
Worcester	190,757	19	5	4	0	0	1	5	7
Rhode Island:									
Pawtucket	69,760	6	1	0	0	0	0	0	0
Providence	267,918	0	10	9	0	1	1	0	9
Connecticut:									
Bridgeport	(1)	4	8	6	1	0	7	1	6
Hartford	160,197	5	8	0	0	0	1	0	10
New Haven	178,927	17	3	1	0	0	1	1	12
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	0	14	11		0	0	14	17
New York	5,873,356	273	201	299	154	20	19	395	225
Rochester	316,786	11	12	28		0	7	1	6
Syracuse	182,003	20	6	1		1	11	1	5
New Jersey:									
Camden	128,642	2	5	12	2	1	1	1	1
Newark	452,513	33	23	18	17	0	3	38	15
Trenton	132,020	7	6	2	3	3	1	1	7
Pennsylvania:									
Philadelphia	1,979,364	133	80	75		10	5	90	80
Pittsburgh	631,563	65	21	18		3	35	3	41
Reading	112,707	17	4	1		4	1	27	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	24	9	15	0	2	0	25	12
Cleveland	936,485	91	34	48	3	1	3	7	18
Columbus	279,836	42	4	14	7	1	5	0	4
Indiana:									
Fort Wayne	97,846	6	3	1	0	0	45	0	1
Indianapolis	358,819	48	12	11	0	0	7	1	16
South Bend	80,091	4	1	2	0	0	16	0	3
Terre Haute	71,071	5	1	1	0	0	4	0	2
Illinois:									
Chicago	2,995,239	133	101	91	32	7	687	55	69
Peoria	81,564	8	1	0	0	1	50	7	1
Springfield	63,923	6	1	3	1	1	123	0	6
Michigan:									
Detroit	1,245,824	78	63	84	3	1	10	70	28
Flint	130,316	17	7	5	0	0	0	1	4
Grand Rapids	153,698	10	4	1	0	0	0	0	2

[1] No estimate made.

City reports for week ended February 5, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	12	2	0	0	0	74	22	0
Madison	46,385	9	1	0	0	0	0	2	0
Milwaukee	509,192	94	20	25	1	1	59	49	17
Racine	67,707	15	2	1	0	0	6	15	0
Superior	39,671	0	0	0	0	0	3	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	11	2	1	0	0	46	0	5
Minneapolis	425,435	115	21	8	0	2	4	4	12
St. Paul	246,001	28	14	3	0	0	2	2	13
Iowa:									
Des Moines	141,441	0	3	3	0	--------	6	0	--------
Sioux City	76,411	7	2	1	0	--------	21	0	--------
Waterloo	36,771	5	1	0	0	--------	39	0	--------
Missouri:									
Kansas City	367,481	63	9	6	0	4	32	2	15
St. Joseph	78,342	3	3	0	0	0	0	0	2
St. Louis	821,543	26	52	40	0	0	24	28	--------
North Dakota:									
Fargo	26,403	2	0	0	0	0	1	1	2
Grand Forks	14,811	0	0	0	0	--------	2	0	--------
South Dakota:									
Aberdeen	15,036	13	0	0	0	--------	4	3	--------
Sioux Falls	30,127	0	1	0	0	--------	0	0	--------
Nebraska:									
Lincoln	60,941	10	2	0	0	2	13	3	0
Omaha	211,768	14	5	1	0	0	55	20	7
Kansas:									
Topeka	55,411	9	2	1	0	0	5	0	2
Wichita	88,367	24	4	1	0	0	0	0	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	2	3	1	0	0	0	0	7
Maryland:									
Baltimore	796,296	73	32	39	19	5	3	8	54
Cumberland	33,741	1	0	1	0	0	0	0	3
Frederick	12,035	0	1	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	71	19	12	2	2	5	0	20
Virginia:									
Lynchburg	30,395	9	1	1	0	1	11	1	3
Norfolk	(1)	21	2	0	0	0	7	0	3
Richmond	186,403	11	4	6	0	3	182	0	2
Roanoke	58,208	1	2	3	0	1	2	0	4
West Virginia:									
Charleston	49,019	15	2	0	1	0	0	1	1
Wheeling	56,208	8	1	2	0	0	1	0	4
North Carolina:									
Raleigh	30,371	6	0	0	0	0	2	0	0
Wilmington	37,061	13	1	1	0	0	0	5	2
Winston-Salem	69,031	10	0	0	0	0	0	17	3
South Carolina:									
Charleston	73,125	1	1	0	44	0	0	0	1
Columbia	41,225	0	0	0	0	--------	2	2	--------
Greenville	27,311	0	0	0	0	0	0	0	0
Georgia:									
Atlanta	(1)	7	3	7	62	2	42	9	8
Brunswick	16,809	2	0	0	0	0	0	0	0
Savannah	93,134	4	1	2	17	1	0	0	6
Florida:									
Miami	69,754	13	2	5	3	0	0	9	1
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	0
Tampa	94,743	3	0	4	0	0	40	0	2

[1] No estimate made.

City reports for week ended February 5, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	1	1	2	0	1	0	0	1
Louisville	305,935	15	7	4	1	0	0	1	13
Tennessee:									
Memphis	174,533	9	4	2	0	4	9	0	7
Nashville	136,220	5	1	1	0	1	0	0	8
Alabama:									
Birmingham	205,670	20	3	13	16	5	7	2	10
Mobile	65,955	4	0	0	1	0	33	2	0
Montgomery	46,481	3	1	3	3	0	4	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	----------	0	----------	----------	----------	----------	----------	----------
Little Rock	74,216	0	1	1	0	1	1	0	3
Louisiana:									
New Orleans	414,493	4	12	14	11	9	128	0	19
Shreveport	57,857	17	1	2	0	0	0	12	1
Oklahoma:									
Oklahoma City	(1)	0	1	1	12	0	0	0	5
Texas:									
Dallas	194,450	7	6	9	1	2	1	5	4
Galveston	48,375	2	1	0	0	0	0	0	2
Houston	164,954	51	5	23	0	1	3	33	0
San Antonio	198,069	1	2	7	0	2	1	1	6
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	11	0	0
Great Falls	29,883	3	2	0	0	0	14	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	0	1	0	0	0	1	12	2
Idaho:									
Boise	23,042	6	1	0	0	0	25	2	0
Colorado:									
Denver	280,911	19	12	9	----------	5	549	2	7
Pueblo	43,787	1	2	5	0	0	2	1	0
New Mexico:									
Albuquerque	21,000	1	0	0	0	0	39	21	5
Arizona:									
Phoenix	38,669	0	0	1	0	0	1	0	6
Utah:									
Salt Lake City	130,948	12	3	7	0	0	200	1	7
Nevada:									
Reno	12,665	0	0	0	0	0	3	0	0
PACIFIC									
Washington:									
Seattle	(1)	30	8	3	0	----------	16	44	----------
Spokane	108,897	10	4	0	0	----------	95	0	----------
Tacoma	104,455	18	3	0	0	0	6	1	5
Oregon:									
Portland	282,383	10	10	3	42	1	11	0	13
California:									
Los Angeles	(1)	82	43	65	8	0	284	10	17
Sacramento	72,260	4	3	2	0	0	113	19	4
San Francisco	557,530	19	23	13	4	2	75	52	9

1 No estimate made.

City reports for week ended February 5, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	1	0	0	0	2	1	0	0	12	25
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	2	7
Manchester	3	1	0	0	0	2	0	0	0	0	21
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	1	6
Burlington	1	------	0	------	------	------	0	------	------	------	------
Massachusetts:											
Boston	69	141	0	0	0	18	1	1	0	13	236
Fall River	2	4	0	0	0	1	1	0	0	11	31
Springfield	9	7	0	0	0	0	0	0	0	7	35
Worcester	10	21	0	0	0	5	0	1	1	0	57
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	21
Providence	7	8	0	0	0	4	0	2	0	2	68
Connecticut:											
Bridgeport	9	23	0	0	0	3	0	0	0	0	39
Hartford	7	2	0	0	0	0	0	0	0	2	42
New Haven	10	10	0	0	0	2	0	0	0	0	44
MIDDLE ATLANTIC											
New York:											
Buffalo	26	23	0	0	0	14	1	0	1	14	152
New York	244	608	0	0	0	[1] 126	8	14	2	73	1,573
Rochester	14	14	0	0	0	2	1	1	1	8	79
Syracuse	18	11	0	0	0	2	0	0	0	10	61
New Jersey:											
Camden	5	7	0	0	0	4	0	0	0	1	35
Newark	26	55	1	0	0	7	1	1	0	34	116
Trenton	5	6	0	0	0	0	0	0	0	9	40
Pennsylvania:											
Philadelphia	89	121	0	0	0	40	3	2	1	19	575
Pittsburgh	44	32	0	0	0	8	0	0	0	7	226
Reading	1	2	0	0	0	0	0	0	0	9	33
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	30	1	0	0	4	0	1	0	4	142
Cleveland	43	37	1	0	0	9	1	1	0	31	191
Columbus	13	15	1	0	0	2	0	0	0	22	81
Indiana:											
Fort Wayne	6	1	0	7	0	1	0	0	0	1	------
Indianapolis	9	26	11	22	0	3	0	0	0	14	102
South Bend	2	1	1	0	0	0	0	0	0	2	18
Terre Haute	3	6	1	0	0	2	0	0	0	3	28
Illinois:											
Chicago	143	126	4	0	0	58	3	5	0	52	775
Peoria	6	1	0	0	0	0	0	0	0	0	24
Springfield	1	3	1	0	0	0	0	0	0	0	31
Michigan:											
Detroit	96	114	3	2	0	27	1	1	0	47	290
Flint	8	36	1	2	0	2	0	0	0	0	34
Grand Rapids	10	15	0	0	0	1	1	0	0	1	33
Wisconsin:											
Kenosha	1	21	1	0	0	0	0	0	0	5	13
Madison	3	12	1	0	0	0	0	0	0	4	9
Milwaukee	30	44	2	0	0	4	1	0	0	25	111
Racine	6	7	1	0	0	0	0	0	0	8	7
Superior	3	4	4	0	0	0	0	0	0	0	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	15	1	0	0	1	0	0	0	1	23
Minneapolis	54	49	13	1	0	2	1	1	0	2	100
St. Paul	34	29	7	1	0	5	0	0	0	10	65

[1] Pulmonary tuberculosis only.

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City reports for week ended February 5, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Des Moines	7	6	2	0	-------	-------	0	0	-------	0	-------
Sioux City	2	10	2	3	-------	-------	0	0	-------	3	-------
Waterloo	2	0	0	0	-------	-------	0	0	-------	6	-------
Missouri:											
Kansas City	13	54	2	14	0	9	0	0	0	11	99
St. Joseph	3	3	0	0	0	0	0	0	0	3	32
St. Louis	36	56	4	0	0	0	1	1	0	15	229
North Dakota:											
Fargo	2	8	0	0	0	0	0	0	0	0	19
Grand Forks	1	2	1	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	1	8	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	2	8	1	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Lincoln	3	8	1	0	0	0	0	0	0	3	15
Omaha	5	29	9	5	0	5	1	0	0	0	73
Kansas:											
Topeka	2	0	0	3	0	0	0	0	0	17	9
Wichita	4	10	0	0	0	4	0	0	0	8	33
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	28	0	0	0	1	0	0	0	1	22
Maryland:											
Baltimore	43	34	0	0	0	12	2	1	0	76	247
Cumberland	1	4	0	0	0	1	0	0	0	4	13
Frederick	1	3	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	26	25	2	2	0	16	1	0	0	16	165
Virginia:											
Lynchburg	1	0	0	0	0	1	0	0	0	0	19
Norfolk	2	3	1	0	0	1	0	0	0	29	-------
Richmond	4	4	0	0	0	5	0	0	0	12	57
Roanoke	1	3	0	1	0	1	0	0	0	0	15
West Virginia:											
Charleston	1	2	0	0	0	0	0	0	0	0	12
Wheeling	1	7	0	0	0	1	1	0	0	1	19
North Carolina:											
Raleigh	0	8	0	0	0	0	0	0	0	17	18
Wilmington	0	2	1	0	0	1	0	0	0	2	18
Winston-Salem	1	1	4	0	0	2	0	0	0	39	14
South Carolina:											
Charleston	0	1	0	0	0	1	1	0	0	0	10
Columbia	0	0	0	0	-------	-------	0	0	-------	9	-------
Greenville	0	0	0	2	0	3	0	0	0	0	11
Georgia:											
Atlanta	3	6	2	14	0	6	0	1	0	5	[illegible]
Brunswick	0	3	0	1	0	0	0	0	0	0	[illegible]
Savannah	1	2	0	3	0	2	0	0	0	0	[illegible]
Florida:											
Miami	1	3	-------	1	0	0	1	0	0	14	42
St. Petersburg	0	-------	0	-------	0	2	0	-------	0	-------	21
Tampa	1	0	0	1	0	4	1	1	0	0	29
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	4	1	0	0	0	0	0	0	0	21
Louisville	5	14	0	1	0	7	0	0	0	93	94
Tennessee:											
Memphis	5	20	2	4	0	3	0	0	0	15	57
Nashville	3	3	1	0	0	2	0	1	0	10	52
Alabama:											
Birmingham	3	2	4	7	0	4	1	0	0	4	70
Mobile	0	5	1	0	0	1	0	0	0	1	13
Montgomery	0	0	0	8	0	0	0	0	0	4	25

City reports for week ended February 5, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	------	1	------	------	------	0	------	------	------	------
Little Rock	1	1	0	0	0	2	1	0	0	2	------
Louisiana:											
New Orleans	6	7	1	0	0	9	2	4	0	6	140
Shreveport	1	0	2	0	0	1	0	0	0	0	28
Oklahoma:											
Oklahoma City	2	0	3	2	0	1	0	0	0	0	33
Texas:											
Dallas	3	15	2	9	0	5	0	0	0	0	54
Galveston	0	1	1	0	0	1	1	0	0	0	15
Houston	2	4	2	10	0	6	0	0	0	1	51
San Antonio	1	1	0	0	0	12	0	0	0	0	60
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	1	0	0	0	0	8
Great Falls	2	5	2	0	0	0	0	0	0	0	6
Helena	0	1	0	0	0	0	0	0	0	0	3
Missoula	1	17	1	0	0	0	0	0	0	0	10
Idaho:											
Boise	1	1	1	0	0	0	0	0	0	0	5
Colorado:											
Denver	13	125	2	0	0	7	0	0	0	0	84
Pueblo	2	4	0	0	0	1	0	0	1	0	13
New Mexico:											
Albuquerque	1	1	0	0	0	6	0	0	0	0	18
Arizona:											
Phoenix	1	2	0	0	0	3	0	0	0	0	18
Utah:											
Salt Lake City	3	16	3	1	0	1	1	0	1	1	42
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	11	20	4	0	------	------	0	2	------	3	------
Spokane	4	52	5	7	------	------	0	0	------	4	------
Tacoma	3	5	3	14	0	0	0	0	0	5	23
Oregon:											
Portland	6	11	8	1	0	8	0	0	0	3	94
California:											
Los Angeles	27	59	5	1	0	26	2	0	0	3	285
Sacramento	2	1	0	1	0	0	0	0	0	1	20
San Francisco	15	30	4	1	0	15	1	1	0	18	192

City reports for week ended February 5, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
New Hampshire:									
Manchester	0	0	0	0	0	0	0	1	1
Massachusetts:									
Boston	0	1	0	0	0	0	1	0	0
Fall River	0	0	1	1	0	0	0	0	0
Connecticut:									
Bridgeport	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	5	1	4	4	0	0	1	0	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0
Pittsburgh	1	1	0	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Columbus	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago	2	2	0	0	1	0	1	0	0
Michigan:									
Detroit	3	0	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee	2	2	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	0	0	0	0	0	0	0	1	0
St. Louis	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	1	0	2	1	0	0	1	0	1
District of Columbia:									
Washington	0	0	1	0	0	0	0	0	0
North Carolina:									
Wilmington	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston [2]	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	0	0	0	0	1	0	0	0	0
Alabama:									
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Texas:									
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Helena	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	2	--------	0	--------	0	--------	0	0	--------
Oregon:									
Portland	0	0	2	0	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	1	0

[1] Typhus fever: 1 case at Tampa, Fla.

[2] Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended February 5, 1927, compared with those for a like period ended February 6, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, January 2 to February 5, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

	Week ended—									
	Jan 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan 23, 1926	Jan. 22, 1927	Jan 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927
DIPHTHERIA CASE RATES										
101 cities	170	199	146	187	142	176	142	178	134	[2] 195
New England	139	158	144	174	132	151	118	163	97	146
Middle Atlantic	182	183	151	177	138	192	130	194	129	229
East North Central	151	223	135	189	131	170	138	175	119	202
West North Central	288	189	258	159	210	147	250	127	222	123
South Atlantic	177	223	140	216	151	161	115	199	132	143
East South Central	52	138	67	250	72	153	41	102	41	127
West South Central	189	256	120	247	155	172	142	203	137	[2] 241
Mountain	182	126	128	117	155	117	264	193	128	189
Pacific	96	230	80	194	139	233	166	168	188	217
MEASLES CASE RATES										
101 cities	1,147	382	974	334	1,336	445	1,385	417	1,481	[2] 560
New England	3,087	253	2,861	195	2,566	548	2,745	323	2,403	378
Middle Atlantic	997	31	846	38	1,090	49	1,187	46	1,350	41
East North Central	1,763	416	1,303	380	2,071	516	2,091	500	2,155	647
West North Central	151	260	129	193	153	278	280	298	395	455
South Atlantic	1,278	205	1,345	203	2,457	303	2,261	257	2,557	538
East South Central	52	107	238	97	284	204	393	188	708	270
West South Central	0	189	17	306	13	453	26	382	34	[2] 577
Mountain	55	5,241	91	3,443	118	5,088	100	4,459	91	7,237
Pacific	64	1,521	51	1,482	64	1,346	72	1,505	104	1,542
SCARLET FEVER CASE RATES										
101 cities	269	318	286	366	292	383	287	386	298	[2] 402
New England	295	490	380	478	300	536	377	539	401	508
Middle Atlantic	210	286	238	339	237	369	235	379	209	434
East North Central	334	283	322	344	325	330	300	342	338	319
West North Central	583	451	557	558	678	518	666	488	754	522
South Atlantic	156	232	184	259	184	281	153	254	162	246
East South Central	119	234	140	214	202	336	109	321	119	245
West South Central	112	155	90	143	69	197	69	113	137	[2] 125
Mountain	237	953	319	1,115	374	1,349	255	1,009	155	1,519
Pacific	241	340	268	377	254	319	332	327	324	437
SMALLPOX CASE RATES										
101 cities	33	22	47	22	35	20	40	26	47	[2] 25
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	2	1	0	1	1	0	0	0
East North Central	48	32	37	21	33	17	43	17	16	22
West North Central	63	58	52	69	34	60	54	79	52	54
South Atlantic	43	27	67	51	56	34	58	60	101	43
East South Central	47	41	57	87	47	25	21	87	41	102
West South Central	52	42	146	25	99	63	125	42	155	[2] 82
Mountain	36	0	18	0	27	0	18	9	73	9
Pacific	110	60	284	37	193	63	204	71	321	63

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Fort Smith, Ark., not included.

Summary of weekly reports from cities, January 2 to February 5, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927
101 cities	13	8	11	9	9	7	8	7	7	[2] 7
New England	31	9	2	21	9	2	9	5	14	9
Middle Atlantic	14	6	16	8	10	5	9	4	3	9
East North Central	11	5	8	1	3	6	4	2	3	5
West North Central	2	8	4	6	4	4	2	8	6	4
South Atlantic	9	7	7	16	7	7	9	18	13	5
East South Central	16	25	16	15	5	10	10	36	21	5
West South Central	21	25	13	17	47	4	17	0	4	[2] 17
Mountain	9	9	9	9	0	27	18	18	36	0
Pacific	11	8	13	21	16	21	11	21	16	8

INFLUENZA DEATH RATES

	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927
95 cities	21	20	23	[3] 21	20	21	29	25	34	19
New England	9	16	14	14	7	5	17	9	12	5
Middle Atlantic	18	18	16	20	14	26	18	22	20	21
East North Central	12	17	11	16	8	25	12	21	12	9
West North Central	8	15	19	10	11	4	13	4	19	12
South Atlantic	15	17	23	24	40	20	36	50	68	28
East South Central	83	46	88	36	57	15	72	31	103	56
West South Central	44	43	75	43	88	43	141	73	168	65
Mountain	46	63	64	99	18	54	73	72	109	45
Pacific	57	10	46	[3] 15	39	31	78	14	67	7

PNEUMONIA DEATH RATES

	Jan. 9, 1926	Jan. 8, 1927	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927
95 cities	220	196	211	[3] 180	199	183	201	159	206	168
New England	245	181	208	190	210	207	144	158	200	188
Middle Atlantic	229	209	236	205	228	197	218	174	213	197
East North Central	177	170	153	152	139	138	166	132	145	122
West North Central	141	116	127	125	82	116	110	127	125	135
South Atlantic	291	234	278	193	289	283	286	193	346	226
East South Central	331	204	284	199	228	245	207	204	248	199
West South Central	313	241	331	181	291	202	415	202	362	151
Mountain	128	369	328	198	273	216	164	171	228	144
Pacific	219	210	166	[3] 178	181	134	173	107	184	121

[2] Fort Smith, Ark., not included. [3] Tacoma, Wash., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,600
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended January 29, 1927.—The following report for the week ended January 29, 1927, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	0	1	0	0	0	0
British India:						
Karachi	----	0	----	0	1	0
Bombay	----	0	----	0	19	10
Tuticorin	----	0	----	0	4	0
Madras	----	0	----	0	17	1
Calcutta	----	0	----	38	135	98
Rangoon	----	5	----	1	4	1
Negapatam	----	0	----	1	0	0
Vizagapatam	----	0	----	0	8	1

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Siam: Bangkok	0	0	1	1	5	2
Hongkong	0	0	0	0	3	3
Union of Socialistic Soviet Republics:						
Vladivostok	0	0	0	0	17	----
Manchuria: Changchun	0	0	0	0	1	1
Mauritius: Port Louis	0	1	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire.
British India.—Chittagong, Cochin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Sabang, Samarinda, Macassar, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon, Haiphong, Turane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy, Shanghai (International Settlement).
Macao.
Formosa.—Keelung.
Chosen.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow, Changchun, Mukden.
Kwantung.—Port Arthur, Dairen.
Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Kobe, Tsuruga, Osaka.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan. Suakin
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban
Reunion.—St. Denis.

Reports had not been received in time for distribution from:

Madagascar.—Tamatave, Majunga.
Dutch East Indies.—Padang, Palembang, Balikpapan, Tarakan.

Belated information

Week ended January 15—

French India.—Pondicherry, smallpox, 3 cases, 2 deaths.

Other epidemiological information received by the Singapore bureau:

Singapore.—Steamship *Solriken* arrived on January 27 from Hongkong infected with smallpox.

Correction to returns for week ended January 22:

Colombo.—Seven plague deaths instead of three.
Madras.—Five smallpox cases instead of 77.

INFLUENZA IN FOREIGN COUNTRIES

The health section of the secretariat of the League of Nations has published the following information relative to the prevalence of influenza in foreign countries. The data were obtained from the health administrations of the several countries. Earlier reports will be found in the Public Health Reports of February 4, 1927, page 283, February 11, 1927, page 367, and February 18, 1927, page 516.

Albania—(*January 26*).—During December influenza invaded nearly the whole country and is still prevalent. The prevailing type is benign.

Algeria—(*January 28*).—Influenza hitherto has appeared only in mild form and the number of cases is not greater than is usual for the time of the year.

Austria—(*January 27*).—There has been a considerable number of mild influenza cases in Vorarlberg, but the incidence is now decreasing. The cases were generally so mild that the greater part of the sick, who did not belong to a sickness insurance fund, did not seek medical assistance. It is the opinion of the administration that there has, so far, been no influenza epidemic in Austria, the cases occurring being not more numerous than is usual at the time of the year.

Belgium—(*January 28*).—Influenza remains benign and the cases are less numerous.

Bulgaria—(*February 3*).—The following numbers of influenza cases and deaths were reported in the towns of the various departments from January 1 to 28: Pleven, 2,749 cases, 13 deaths; Varna, 1,309 cases, 4 deaths; Haskovo, 1,179 cases, 14 deaths; Bourgas (6 towns), 2,890 cases, 23 deaths; Mastanly, 311 cases, 1 death; Roustjuk, 1,571 cases, 4 deaths; Stara-Zagora (4 towns), 522 cases, 7 deaths; Choumen, 1,945 cases; at Tirnovo 30 per cent of the population is suffering from influenza, there have been 7 deaths; Kustendil, 40 per cent of the population sick, 1 death; Vidin, 1 death. There is a tendency for the epidemic to decrease at Bourgas, Stara-Zagora, and Sofia.

Czechoslovakia.—During the week ended January 22 there was a considerable increase in the incidence of influenza in Czechoslovakia. In Bohemia 21,468 cases and 22 deaths were reported; in Moravia 4,032 cases and 4 deaths, in Silesia 1,181 cases and 2 deaths, in Slovakia 4,148 cases and 11 deaths. In Uzhorod and Mukacevo the number of cases is estimated at 5 per cent of the population. At Berehovo it is estimated at 7 per cent among adults and 33 per cent among children of school age.

Egypt—(*January 29*).—Influenza is not very prevalent and the cases are, mostly of mild type.

England and Wales—(*February 1*).—The week ended January 29 brought no material changes in the influenza position. The epidemic is apparently abating in the southern districts, but increased death returns are reported from London. An epidemic of mild type is widespread in the Midlands, especially in the counties of Northampton, Nottingham, and Leicester. The northern districts are still comparatively free. The provisional returns for the said week are as follows: Deaths from influenza in London 252, in 105 large towns, including London, 725. Pneumonia notifications numbered 433 in London and 2,559 in the whole country.

Mortality statistics for London show that the age distribution of the deaths attributed to influenza was, during the last three weeks, about the same as during the epidemic of 1924, except that deaths among children have been less frequent.

Finland—(*January 29*).—Reports for the first two weeks of January show that influenza was not epidemic. The cases were, however, more numerous in a few towns. The most recent information would indicate that an epidemic is beginning. The cases are mild.

Germany.—Statistics of causes of death show a moderate increase of the general mortality and of deaths from respiratory diseases in north and west German towns during the week ended January 8. The number of deaths from influenza increased from 23 during the preceding week to 56 at Berlin and from 22 to 40 at Breslau. The general mortality was 15.6 per cent per 1,000 inhabitants at Berlin and 20.2 at Breslau. The other towns were less affected and those of Saxony not at all.

Statistics of influenza cases reported among the members of the General Sickness Insurance Fund of Berlin show that the incidence has decreased since about January 20.

Influenza is not a notifiable disease in Germany, and statistics of the number of cases are available only for the city of Nuremberg, where the members of the medical society have decided to notify cases occurring in their practice. The cases notified in this town numbered 71 during the week ended January 1; 192 during the week ended January 8; and 745 during the week ended January 15. It may be added that there was only one death attributed to influenza in Nuremberg during the first two weeks of the year.

Greece—(*February 3*).—The influenza epidemic continues in mild form. A considerable decrease of the incidence is observed everywhere, except in Macedonia.

Hungary—(*February 1*).—One thousand and twenty-one influenza cases and 19 deaths were reported at Budapest during the week ended January 29, as compared with 732 cases and 14 deaths during the previous week. A considerable prevalence of common colds is reported. There were 69 deaths from pneumonia during the third week of January, as compared with 58 during the previous week, figures which are nearly normal for the season. The number of cases is now decreasing at Budapest and complications are becoming more rare. It is stated that the Pfeiffer bacillus has been recovered in 10 per cent of the influenza cases bacteriologically examined. The Army Medical Service reports 1,192 influenza cases, of which 20 were severe cases with one death during the week ended January 29, as compared with 2,708 cases during the previous week. The number of cases is reported to be decreasing also elsewhere in the country.

India.—Returns from a number of Provinces and cities in India show very little influenza.

Ireland.—The influenza epidemic has not so far appeared in Ireland; only two deaths were attributed to this disease at Dublin and five at Belfast during the week ended January 22.

Korea.—Fifty-one influenza cases were reported at Chemulpo; 240 cases and 4 deaths at Fusan during the week ended January 29.

Luxemburg—(*February 3*).—Influenza exists everywhere in the Grand Duchy. Its character is, however, very mild and complications are rare; there have been only a few cases of bronco-pneumonia. Deaths due to influenza are very rare. The epidemic reached its maximum at the beginning of January, since when it has decreased.

Netherlands.—Twenty-five deaths from influenza were reported at Amsterdam during the week ended January 22, as compared with 32 deaths during the previous week and 23 during the first week of January.

Poland—(*January 27*).—The incidence of influenza is diminishing and its character remains mild.

The disease has been more prevalent than during the previous year but the mortality was low.

Portugal—(*January 28*).—Influenza cases are numerous but the incidence is hardly higher than normal for the time of the year. Pneumonia cases are rare. The frontier zone has been the least affected part of the country.

Scotland.—The registrar general of Scotland states (January 31) that the death returns remain normal.

Spain—(*January 27*).—The influenza incidence continues to diminish in all Provinces and the disease remains benign in character.

Sweden—(*January 31*).—Influenza is now rather prevalent throughout Sweden but its character remains mild.

Six thousand one hundred and sixty-six influenza cases were reported from January 1 to 15, of which 2,531 occurred in the Province of Norrbotten, in the northernmost part of Sweden, and 833 in the town and Province of Malmoe, across the sound from Copenhagen.

Switzerland.—Influenza cases reported numbered 19,122 during the week ended January 22, as compared with 22,726 during the previous week. The epidemic diminished very markedly at Geneva, Basle, Bern, Lucerne, and Soleure, and is now practically terminated in these cantons. The number of cases reported at Zurich increased only slightly. A marked increase was shown only by the returns from St. Gall and Ticino.

BRITISH EAST AFRICA

Leprosy—(November and December, 1926).—Leprosy has been reported in British East Africa as follows: December 2–31, 1926, two cases at Mombasa, and in Zanzibar, during the month of November, 1926, one case.

CANADA

Communicable diseases—Week ended February 5, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases for seven Provinces of Canada for the week ended February 5, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1	1				2
Influenza	13				1			14
Lethargic encephalitis				1				1
Smallpox				19	5	2	14	40
Typhoid fever		1	11	5	1		2	20

Communicable diseases—Ontario—January, 1927—Comparative.—During the month of January, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	January, 1927		January, 1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	8	7	6	2
Chancroid	9			
Chicken pox	1,273		1,010	
Diphtheria	419	34	288	16
German measles	149	4	63	
Gonorrhea	172		135	
Influenza		30		46
Lethargic encephalitis	2		2	
Measles	2,406	1	1,305	3
Mumps	255		560	
Pneumonia		239		281
Poliomyelitis			2	1
Scarlet fever	885	4	811	7
Septic sore throat			8	
Smallpox	167	1	78	
Syphilis	125		114	
Tuberculosis	178	76	138	82
Typhoid fever	59	3	51	4
Whooping cough	553	4	240	3

Smallpox.—Smallpox was reported present during the period under report in 24 towns and townships and in one unorganized district. The localities showing the greatest number of cases were: Belleville, 17 cases; Loughboro, 19; Peterboro, 24; Toronto, 35. In seven localities one case each was reported.

CHINA

Further relative to pneumonic plague—Mongolia.—According to the quarterly report of the North Manchurian Plague Prevention Service for the quarter ended December 31, 1926, the plague outbreak in Mongolia [1] was confined to a limited area near Chechan Han, 200 English miles from Urga. The last reported case was stated to have been recorded on December 13, 1926.

CZECHOSLOVAKIA

Communicable diseases—September, October, and December, 1926.—During the months of September, October, and December, 1926, communicable diseases were reported in the Republic of Czechoslovakia as follows:

September and October, 1926

Disease	September		October	
	Cases	Deaths	Cases	Deaths
Anthrax	3		5	1
Cerebrospinal meningitis	5	2	3	2
Diphtheria	421	25	564	43
Dysentery	138	15	215	15
Malaria	57		29	
Paratyphoid fever	15	2	12	
Puerperal fever	34	17	35	16
Scarlet fever	988	9	1,591	25
Trachoma	179		212	
Typhoid fever	952	50	980	71
Typhus fever			1	

December, 1926

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	2	1	Puerperal fever	57	15
Cerebrospinal meningitis	7	1	Rabies	2	2
Diphtheria	834	70	Scarlet fever	1,542	21
Dysentery	45	4	Trachoma	182	
Malaria	1		Typhoid fever	665	46
Paratyphoid fever	4	1	Typhus fever	9	

JAMAICA

Smallpox (alastrim)—December 26, 1926–January 29, 1927.—During the five weeks ended January 29, 1927, 42 cases of smallpox, reported as alastrim, were notified in the island of Jamaica, not including Kingston Parish and city.

[1] Public Health Reports, Dec. 31, 1926, p. 3098; Feb. 4, 1927, p. 359; Feb. 11, 1927, p. 447.

Other communicable diseases.—During the period under report certain communicable diseases were reported in the island of Jamaica as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Chicken pox		3	Puerperal fever		2
Diphtheria		1	Tuberculosis	11	39
Dysentery	10	11	Typhoid fever	19	65
Leprosy		1			

Population: Island, estimated, 916,620; Kington, 62,707.

LATVIA

Communicable diseases—November, 1926.—During the month of November, 1926, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Mumps	9
Chicken pox	4	Paratyphoid fever	1
Diphtheria	66	Puerperal fever	2
Dysentery	2	Scarlet fever	596
Erysipelas	36	Tetanus	3
German measles	26	Trachoma	21
Leprosy	4	Typhoid fever	76
Malaria	1	Whooping cough	79

Population, 1,860,000.

MADAGASCAR

Plague—November 16–30, 1926.—During the 15 days ended November 30, 1926, 161 cases of plague, with 134 deaths, were reported in the island of Madagascar. The occurrence was distributed by Provinces as follows: Itasy—cases, 6; deaths, 6. Moramanga—cases, 15; deaths, 10. Tamatave—cases, 11. Tananarive—cases, 129; deaths, 118. Distribution according to type was: Bubonic, 90 cases; pneumonic, 41; septicemic, 30. Urban occurrence was: Tamatave Town, 2 cases; Tananarive Town, 13 cases.

MALTA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the island of Malta as follows:

Disease	Cases	Disease	Cases
Bronchopneumonia	12	Pneumonia	5
Chicken pox	2	Scarlet fever	4
Diphtheria	4	Trachoma	19
Erysipelas	4	Tuberculosis	20
Influenza	4	Typhoid fever	45
Malta fever	34	Whooping cough	40

Population, estimated, 225,242.

Mortality from certain diseases.—During the period under report 1 death from diphtheria, 12 deaths from tuberculosis, and 6 deaths from typhoid fever were reported in the island of Malta.

NETHERLANDS

Correction—Smallpox erroneously reported at Amsterdam.—The report of 9 deaths from smallpox at Amsterdam, Netherlands, during the week ended July 24, 1926, was erroneous. The director of the Medical Statistical Department of the Municipal Health Service of Amsterdam states that no case of smallpox has been reported in Amsterdam for a long time.

PERU

Plague—December, 1926.—During the month of December, 1926, 66 cases of plague, with 22 deaths, were reported in Peru. The occurrence was distributed in four Departments as follows: Ancash—6 cases in one province; Cajamarca—36 cases in two Provinces; Libertad—two cases in one Province and locality (Pacasmayo); Lima—22 cases in three Provinces, including five cases in Lima City and country districts.

SENEGAL

Yellow fever, vicinity of Diourbel—January 10–20, 1927.—During the period January 10–20, 1927, a fatal case of yellow fever, occurring in a Syrian, was reported at N'Bake, 40 kilometers north of Diourbel.

TUNISIA

Plague—January 12–26, 1927.—Under date of January 26, 1927, 34 cases of plague were reported in Tunisia, of which 31 occurred in new foci.

UNION OF SOUTH AFRICA

Plague—Cape Province—December 26, 1926–January 1, 1927.—During the week ended January 1, 1927, one fatal case of plague was reported in the Cape Province, occurring in Hanover District.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended February 25, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Calcutta	Dec. 19-25	72	62	
Do	Dec. 26-Jan. 1	56	53	
Madras	Jan. 2-8	8	6	
Rangoon	Dec. 26-Jan. 1	3	4	
Siam	Apr. 1, 1926-Jan. 1, 1927.			Cases, 7,847; deaths 5,164.
Do	Dec. 19-Jan. 1	41	22	
Bangkok	do	6	2	
Straits Settlements:				
Singapore	Dec. 5-18	7	3	

PLAGUE

Place	Date	Cases	Deaths	Remarks
India:				
Madras	Dec. 19-25	88	54	
Madagascar				Nov. 16-30, 1926: Cases, 161; deaths, 134. Bubonic, 90; pneumonic, 41; septicemic, 30.
Province—				
Itasy	Nov. 16-30	6	6	
Moramanga	do	15	10	
Tamatave	do	11		Tamatave Town: Cases, 2; other localities, 9.
Tananarive	do	129	118	Tananarive Town: Cases, 13; other localities, 116.
Peru				December, 1926: Cases, 66; deaths, 22.
Department—				
Ancash	Dec. 1-31	6	6	At Huanchay.
Cajamarca	do	36	6	Cajamarca and Cutervo Provinces, in districts.
Libertad	do	2		At Pacasmayo.
Lima	do			Cases, 22; deaths, 10.
Chancay Province	do	11	1	
Lima Province	do	5	3	City and districts.
Canete	do	6	6	In districts.
Tunisia				Jan. 12-26, 1927: Cases, 34.
Bousse	Jan. 12-26	8		Southeast of locality, in 3 foci.
Djeneniana	do	8		In district.
Kairouan	do	3		Vicinity.
Mahares	do	15		
Union of South Africa:				
Cape Province—				
Hanover District	Dec. 26-Jan 1	1	1	

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Jan. 1-10	1		
Canada	Jan. 30-Feb. 5			Cases, 40.
Alberta	do	14		
Manitoba	do	5		
Winnipeg	Feb. 6-12	1		
Ontario	Jan. 30-Feb. 5	19		
Saskatchewan	do	2		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 9-15	1		
Chungking	Jan. 26-31			Present.
Nanking	Jan. 2-15			Do.
France:				
Paris	Jan. 11-20	6	1	
Great Britain:				
England and Wales	Jan. 9-22			Cases, 1,233.
Newcastle on Tyne	Jan. 16-22	3		
Sheffield	Jan. 8-22	223		
Greece	Dec. 1-31	5		

[1] From medical officers of the Public Health Service, American consul, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended February 25, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India.				
Bombay	Dec. 26-Jan. 1	8	5	
Do	Jan. 2-7	8	5	
Calcutta	Dec. 19-25	93	72	
Do	Dec. 26-Jan. 1	117	79	
Madras	Jan. 2-15	20	2	
Rangoon	Dec. 26-Jan. 1		1	
Jamaica	do	3		
Do	Jan 2-29	39		
Mexico:				
Chihuahua	Jan 31-Feb 6			Unofficially reported present.
Parral	do			25 cases unofficially reported.
San Luis Potosi	Jan. 16-29		4	
Tampico	Jan. 21-31	1		Varioloid.
Siam				Dec 19-Jan. 1, 1927: Cases, 3; deaths, 2.
Bangkok	Dec. 19-Jan. 1	3	2	Apr. 1, 1926-Jan. 1, 1927: Cases, 711; deaths, 268.
Straits Settlements:				
Singapore	Dec. 5-18	3	2	

TYPHUS FEVER

Chile:				
Valparaiso	Jan. 16-22		1	
China.				
Chungking	Dec. 25-31			Present.
Czechoslovakia	Oct. 1-31	1		
Do	Dec 1-31	9		
Greece:				
Athens	do	4		

YELLOW FEVER

Senegal:				
Diourbel	Jan. 1-20	1	1	At N'Bake.

Reports Received from January 1 to February 18, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14-20			Present.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-30	231	143	
French Settlements in India	Aug. 29-Oct. 30	128	94	
India	Oct. 10-Nov. 27			Cases, 10,739; deaths, 6,404.
Calcutta	Oct. 31-Dec. 18	257	198	
Madras	Dec. 26-Jan. 1	2	2	
Rangoon	Nov. 21-Dec. 25	8	5	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; death, 1.
Japan:				
Hiogo	Nov. 14-20	3		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 18, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-31	1		
Siam	Apr. 1-Dec. 18			Cases, 7,806; deaths, 5,142.
Bangkok	Oct. 31-Dec. 18	10	3	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Dec. 4	3	2	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
British East Africa:				
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador.				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 30,616; found infected, 151.
Do	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piraeus.
Athens	Nov. 1-Dec 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Nov. 27			Cases, 10,593; deaths, 6,237.
Bombay	Nov. 21-27	1	1	
Madras	Oct. 31-Dec. 4	415	212	
Rangoon	Nov. 14-Dec. 25	11	9	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925 Cases, 16; deaths, 13
Cochin-China	do	8	4	July, 1925. No case.
Kwang-Chow-Wan	do	10		July, 1925. Cases, 22; deaths, 15
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar.				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Nov. 15	8	8	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Nov. 15	38	26	
Tamatave	Oct. 16-31	3	1	
Tananarive	Oct. 16-Nov. 15			Cases, 180; deaths, 167.
Tananarive Town	do	26	25	
Mauritius:				
Plaines Wilhems	Oct. 1-31	2	2	
Port Louis	do	7	7	
Nigeria	Aug. 1-Sept. 30	492	441	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 18, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru	Nov. 1-30			Cases, 24; deaths, 4.
Departments—				
Cajamarca	do			Present.
Ica—				
Chincha	do	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Lima	do			Cases, 30; deaths, 4. Present in Cajatambo and Chancay Provinces.
Canete Province	do	10	3	
Chancay Province	do	3		
Lima Province	do	7	1	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Aug. 31	19		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia:				
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar District	Nov. 21-27	1		Native.
Hanover District	Nov. 14-25	2	1	Native. On farm.
Middleburg District	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; dea[illegible]
Bothaville District	Dec. 5-18	2	1	
Hoopstad District	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Vrede Fort District	Dec. 19-25	10	5	First case occ[illegible] Dec. 1, 1926. Rep[illegible]

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20			Cases, 477
Algiers	Dec. 11-31	4		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,18[illegible]
Sao Paulo	Aug. 23-Oct. 24	12	9	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-29	181		
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-22	28		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-29	8		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Feb. 5	5		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-29	124		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-29	35	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-29	21		
Regina	Jan. 16-22	1		
China:				
Chungking	Nov. 7-Dec 25			Present.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Shanghai	Dec. 12-18		1	
Swatow	Nov. 21-27			Do.
Nanking	Dec. 12-25			Do.
Chosen	Aug. 1-Sept. 30	42	14	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Oct. 31	165		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-10	1		
French Settlements in India	Aug. 29-Nov. 30	83	83	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Do	Jan. 2-8			Cases, 412.
Bradford	Jan. 9-22	2		
Newcastle-on-Tyne	Dec. 5-11	2		
Do	Jan. 2-19	7		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-8	20		
Greece	Nov. 1-30	20		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
India	Oct. 10-Nov. 27			Cases, 7,882, deaths, 1,8[illegible].
Bombay	Nov. 7-Dec. 25	29	21	
Calcutta	Oct. 31-Dec. 18	239	160	
Karachi	Dec. 19-25	1	1	
Madras	Nov. 21-Jan. 1	32	2	
Rangoon	Nov. 28-Dec. 25	2	1	
Indo-China	July 1-31			Cases, 29; deaths, 10
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39, deaths, 7.
Cambodia	do	11	4	July, 1925. Cases, 62, deaths, 18.
Chochin-China	do	6	1	July, 1925: Cases, 12, deaths, 7.
Laos	do	3	1	July, 1925. Cases, none.
Tonkin	do	3	1	July, 1925. Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Basra	Nov 7-13	1	1	
Italy	Aug. 29-Oct. 23	12		
Genoa	Dec. 20-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Dec. 25	34		Reported as alastrim.
Japan:				
Kobe	Nov. 14-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 27	10	1	
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
Chihuahua	Dec. 31			Several cases; mild.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal district.
Do	Dec. 26-Jan. 8	1		Do.
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-15		2	
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-22		5	
Nigeria	Aug. 1-Sept. 30	61	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Peru:				
Arequipa	Dec. 1-31			Present.
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-15	5		
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Senegal.				
Dakar	Jan. 9-15	1		
Siam	Apr. 1-Dec. 18			Cases, 708; deaths, 266.
Bangkok	Oct. 31-Dec. 18	25	8	
Sierra Leone:				
Manowa	Dec. 1-15	1		Pendembu district.
Straits Settlements:				
Singapore	Oct. 31-Nov. 27	3		
Tunisia	Oct. 1-Nov. 20	7		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20	22		
Bulgaria	July 1-Oct. 31	23	3	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-8	3		
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chosen	Aug. 1-Sept. 30	15		
Seoul	Nov. 1-30	1		
Egypt:				
Alexandria	Dec. 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 30	15	2	
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Oct. 31	17	2	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-15	1		
Durango	Jan. 1-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-15	16		Do.
Nigeria	Sept. 1-30	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 18, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Jan. 10	4		
Jaffa	Nov. 23-Dec. 20	6		
Jerusalem	Sept. 1-Oct. 30	19		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	10		
Safad	Dec. 28-Jan. 3	1		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Oct. 31	114	6	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Tunisia	Oct. 1-20	3		
Turkey:				
Constantinople	Dec. 12-25	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27	1	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

X

TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 9

MARCH 4 - - - 1927

SPECIAL ARTICLES

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 MARCH 4, 1927 NO. 9

SYPHILIS NOT CAUSED BY VACCINATION

It has come to the attention of the undersigned that false statements are being circulated that have caused some people to believe or fear that vaccination against smallpox may cause syphilis. Since the activities under our charge furnish direct evidence in refutation of this idea, we have considered it our duty to issue a statement that syphilization as a result of vaccination does not occur.

Before the discovery of smallpox vaccine the only protection against the dangers of smallpox was by inoculating a person intentionally with the disease and thereby producing, in general, a milder attack than that contracted when smallpox was caught in a natural manner. In this way the inoculation of syphilis along with smallpox, or even of syphilis instead of smallpox, was possible. This possibility also existed when vaccination first supplanted smallpox inoculation, and was performed, as was smallpox inoculation, from the arm of one human subject to another. Cases of syphilis following inoculation or vaccination with human vaccine were, nevertheless, extremely rare. Syphilis, however, is a disease confined in nature to the human species alone, and as soon as the use of calf vaccine instead of human vaccine became universal, the *possibility of transferring syphilis by vaccination was entirely done away with.*

Since 1917 the United States Army has vaccinated approximately 4,700,000 members of its personnel; the United States Navy has vaccinated approximately 950,000 members of its personnel; and of these 5,650,000 persons, *not one* ever developed syphilis as a result of vaccination. In not one of them was there ever any suspicion of syphilis in connection with vaccination. During this same period the United States Public Health Service has also vaccinated 2,918,748 persons in carrying out its quarantine, immigration, and hospital work. While the Public Health Service has not always had the opportunity of following up these vaccinations, as is carefully done in the Army and Navy, no one has ever alleged that any particular individual vaccinated by the Public Health Service has contracted syphilis as a result of vaccination.

During the past 10 years more than 2,000,000 persons, including school children, have been vaccinated by State and local health authorities in cooperation with the United States Public Health Service, making a grand total of 10,568,748 vaccinations recorded by the Government medical services, and not one of the undersigned

has ever received an allegation or a statement charging that any particular individual of this number has contracted syphilis as a result of vaccination. In fact, there has never been reported anywhere a case of syphilis attributable to vaccination following the use of bovine smallpox vaccine.

Smallpox vaccine is a standard medicinal product, the quality of which is prescribed by the United States Pharmacopœia and as such is subject to the provisions of the pure food and drugs law. Furthermore, smallpox vaccine, together with other vaccines and serums for human use, has been deemed of such importance by the Government that its production for sale within the jurisdiction of the United States has been under the special protection of an act passed July 1, 1902, antedating even the pure food and drugs law. Under this law all establishments producing smallpox vaccine for interstate sale must be licensed by the Secretary of the Treasury, upon the recommendation of the United States Public Health Service, and the production is controlled by regulations drawn up by a board composed of the undersigned. These regulations provide for repeated inspections of the producing laboratories, for proper labeling, and for all safeguards which may be thrown about the making of such an important product. At present even the placing of the vaccine in the small tubes and the sealing of these tubes is required to be done in such a way that no hand, even though sterile, touches the vaccine. Repeated examinations of the product, for safety, are required.

This vaccine was used in the vaccination of the millions mentioned above and is exactly the same as that used by doctors in private practice in the vaccination of the general public throughout the United States.

(Signed) M. W. IRELAND,
Surgeon General, U. S. Army.
(Signed) E. R. STITT,
Surgeon General, U. S. Navy.
(Signed) H. S. CUMMING,
Surgeon General, U. S. Public Health Service.

FEBRUARY 15, 1927.

NOTE.—The original signed copy of this statement is on file at the office of the Surgeon General, United States Public Health Service, Washington, D. C.

REGULAR MEETING OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE, OCTOBER, 1926 [1]

The Permanent Committee of the International Office of Public Hygiene held its regular session of 1926 from October 21 to 30, 1926, at Paris.

[1] Translation from a report furnished by the Office International d'Hygiene Publique.

There were present: Messrs. Velghe (Belgium), president; Madsen (Denmark), Abd el Salam el Guindy Bey (Egypt), Taliaferro Clark (United States of America), Barrere (France), L. Raynaud (Algeria), Duchene (French West Africa), Audibert (French Indo-China), Thiroux (Madagascar), G. S. Buchanan (Great Britain), F. P. Mackie (British India), C. L. Park (Australia), H. B. Jeffs (Canada), S. P. James (New Zealand), Stock (Union of South Africa), Matarangas (Greece), Lutrario (Italy), Mitsuzo Tsurumi (Japan), Roussel (Monaco), H. M. Gram (Norway), N. M. Josephus Jitta (Netherlands), W. de Vogel (Netherlands East Indies), Mimbela (Peru), Djavad Asthiany (Persia), W. Chodzko (Poland), Ricardo Jorge (Portugal), Yoannovitch (State of Serbia, Croatia, and Slovenia), Carriere (Switzerland), L. Prochazka (Czechoslovakia), de Navailles (Tunisia), Galib Ata (Turkey), A. Roubakine (Union of Socialist Soviet Republics), Herosa (Uruguay), also Mr. Pottevin, director of the International Office of Public Hygiene.

Agreement signed at Brussels December 1, 1924, relative to facilities to be extended to seamen of the merchant marine for the treatment of venereal diseases.[2]—Since the month of May last, two additional Governments (those of Greece and Finland) have deposited their ratifications.

Information received warrants the statement that, in Europe, at least, the provisions of the agreement are being generally put in practice, even at ports which have not yet ratified. In Great Britain and North Ireland (which have ratified), 89 of the 247 dispensaries existing are distributed among 59 ports.

Agreement as to antidiphtheritic serums.—Most of the countries which had been previously approached by the French Government on the subject of signature to the agreement, the project for which had been adopted by the Office, have replied favorably. Some have already remitted full powers preparatory to signing, which will probably not now be long delayed.

Revised nomenclature of causes of sickness and death transmitted by the French Government, August 28, 1924.—To the list of Governments which have made known their decision to adopt this nomenclature should be added those of Australia, New Zealand, South Africa, Egypt, Japan, Rumania, Italy, and Peru.

II

New obligations of the International Office.—The greater part of the session was devoted to the study of the new obligations imparted to

[2] Bulletin of the International Office of Public Hygiene, Vol. XVIII (1926), p. 1092.

the Office by the International Sanitary Convention of June 21, 1926,[2] and the means of meeting these obligations.

A committee of experts has been named to assist the director in the formation of the new organization. The first line of study by the committee is the taking cognizance of the information services created, on their own account, by the several Governments, notably by the Governments of the United States and Great Britain, and which cover, to a certain extent, the new obligations of the office.

The director has been invited to enter, from this time, upon the necessary negotiations with a view to obtaining, conformably to the provisions of article 7 of the convention, and under express reservation of the requirements of the last paragraph of that article, the cooperation of the several organizations, notably, of the Far East Bureau of the League of Nations at Singapore, and the Pan American Sanitary Bureau.

Determination of the form of certificates of deratization and exemption from deratization, provided by article 28 of the convention, has been referred to a special committee.

The Sanitary Conference of Paris of 1926 referred to the Office, for study, questions relative to *reporting* and, in partciular, to the *use of radio* in sanitary operations.

With regard to reporting, the committee has been apprised, by the Bureau of the International Hydrographic Bureau of Monaco, of proposals for an international maritime conference, suggested for 1927. It has examined these proposals and formulated its observations, which have been transmitted to the International Hydrographic Bureau.

The questions relative to use of radio, which constitute a subject of investigation in different countries, have been reserved for later study. The conference has also referred to the Office, for study and for all eventual initiatives, *questions relating to ships' doctors.* A first exchange of views has been had on this subject, which will be resumed in the course of later sessions.

The committee has also considered *medical and sanitary instructions intended for captains* of vessels not having a physician on board. The committee, being convinced of the importance of establishing a uniform international model for these instructions, has decided to communicate with the League of Red Cross Societies, which has already taken steps in this direction.

The committee has taken cognizance of the *Report on the work of the Eighth Session of the Health Committee of the League of Nations,* held at Geneva from October 13 to 17, 1926.

[2] Bulletin of the International Office of Public Hygiene, Vol. XVIII (1926), p. 1221.

III

The committee has received communications, many of which have given rise to profound discussions, on questions bearing on the order of the day. The greater part of these have been already published in the *Bulletin of the International Office of Public Hygiene.* The following is a summary:

The diminishing importance which is being attached in the several countries to *terminal disinfection* in relation to disinfection during the course of the disease, and the manner in which to carry out, under the best conditions of safety and economy, the isolation of contagious cases in hospital care.

The *Mediterranean group of diseases*, viz, leishmaniosis, bilharziosis, and undulant fever (Malta fever).

Plan of *campaign against malaria* in Italy and Egypt.

The *mental sequellæ of lethargic encephalitis* and the measures taken in this connection in England.

Scarlet fever—its evolution in different countries; experiments in serotherapy and vaccination. In England the disease emphasizes its benign character, but experience demonstrates that complications are more frequent in the case of patients at home even when well-cared for, than in hospital cases; hence the indication of hospital care whenever this is possible. Taking into account all the data at hand, the Metropolitan Asylums Board of London decided that the order of priority for hospitalization of contagious cases should be fixed as follows: Diphtheria, scarlet fever, measles, and whooping cough.

Report of a study voyage carried out in the ports of the Baltic and North Seas by a group of sanitary officers. Observations made concerning the control of arriving vessels, disinfection, deratization, and rat-proofing, facilities for the treatment of venereal diseases, rest and recreation stations, the Institutes of Tropical Medicine of Hamburg, London, and Amsterdam, and provision for the care of emigrants.

Lazarettos appear to be less in favor; they are rarely made use of and their maintenance is expensive. It is more usual now to send to the city contagious disease hospital any contagious patient, whatever be the nature of his disease, who may arrive on shipboard.

Treatment of venereal diseases.—Reference has already been made above to the organization created in Great Britain in connection with the agreement of December 1, 1925, and which comprises 89 centers in 59 ports.

Cancer.—Organization of the fight against cancer in Great Britain, France, Italy, Switzerland, Holland, Japan, and Russia; the creation of anticancer centers, for diagnosis and treatment; education of the public regarding the importance of early diagnosis and treatment,

etc. Certain observations made in Switzerland, Russia, and Japan tend to attribute to diet an influence in the causation of cancer.

The fauna of rodents and their fleas in relation to plague.—This subject is complicated by the fact of the great diversity in zoological nomenclature. The names of genera and species for the same animal vary according to countries and authors; however, from a preliminary study already begun, we may draw the following conclusions:

(1) Rat plague, penetrating into the back country of certain zones of Asia, Africa, and America, has succeeded, through contamination of the wild rodents, which are very sensitive to the virus, in starting (lighting up) enzootic foci of plague which are permanent and independent of their primary origin and which may be termed *wild*, because of the habitat of the carriers in desert regions (steppes, veld, etc.).

(2) This plague fauna differs according to the regions invaded; and although there are always, or almost always, different species attacked, there is only one species or a group of similar species which plays the capital rôle of epizootic host and represents the reservoir of the virus. Such are, notably, the tarbagan (*Arctomys borac*) in northeast Asia; the gerbille (*Taterona lobengula*) in South Africa; the spermophiles (*Spermophilus fuscus, mugozaricus, rufescens, fulvus*, etc.) in South East Russia; the chipmunks and squirrels in California, etc.

(3) Other species collaborate in this, and among them we may distinguish those which, being less wild, especially such as the several varieties of the field mice (*Rattus concha, Arvicanthus pumilio*), range around human dwellings, becoming intermediaries of infection for man. When man comes in contact with the infected species, whether in hunting or in the cultivated field in safeguarding his crops, whether in connection with food supply or, as in the case of the tarbagan, when he pursues the animal in the chase for pecuniary profit, the complementary species does not intervene. Ordinarily the common rats, the two *cpymis*, the universal vectors par excellence of plague, have, up to the present time, had no part in the contagion. They do no more than open the door to other sensitive species.

(4) Although the inter-zootic and zoo-human exchange may be made by different processes of transmission, the capital rôle devolves, as for rat-human plague, on the ectoparasites, especially on the fleas, such as *Ceratophyllus silantievi, C. tesquorum, Neopsylla setosa*, which also bite man.

(5) Plague in wild rodents presents certain special aspects. The ganglionic localizations are at times buboes; the visceral localizations are very much accentuated, especially the pulmonary. Among those species which hibernate, the infection may remain localized at the point of inoculation, to break out acutely at the moment of

awakening. Plague may thus evolve in benign cases, without bacteremia.

(6) Human plague derived from wild plague presents the usual features. Pneumonic plague is, however, associated with it frequently, and with remarkable predominance in Manchuria. This pneumo-plague follows on the bubonic and septicemic, but apparently it might have been contracted either from the zoo-pneumonic plague of wild rodents, namely, of the tarbagans, or while handling the plague virus itself as it exists in the carcasses or fur of the animals—a genesis similar to the so-called laboratory plague, which is generally of the pneumonic type.

(7) Prophylaxis has been directed to the extinction of the enzootic infection by the extermination of the wild rodents; and this, as it requires persevering and expensive measures, is difficult of attainment. It is possible, however, to establish, around inhabited localities, a zone of protection in which noxious species may be reduced to a minimum by the direct use of poisons, explosives, and particularly of asphyxiating gases. Contrary to what has been done heretofore, encouragement should be given to the introducing of species which are the natural enemies of field rodents—mammifers, birds, and carnivorous reptiles. In the case of hunting which brings in considerable revenue, such as hunting the tarbagans, and which it is practically impossible to prohibit, it will be necessary only to exercise active control over this pursuit and to issue rules and instructions regarding it, as is done for the dangerous industries.

General paresis.—Data received indicate that this affection is very definitely decreasing in certain countries, notably in England and Czechoslovakia. As concerns the attempts to treat this affection by inoculation with malaria, the opinion to be formed, without being definitive, is rather favorable.

Leprosy.—In Bosnia-Herzegovina, leprosy, which had at first seemed on the decline, shows a tendency in the opposite direction. The numbers of lepers present, which fell from 136 in 1909 to 27 in 1923, rose to 42 in 1924.

In Korea (Chosen) it may be estimated that there exist at present three or four thousand lepers; the treatment with the esters of the fatty acids of chaulmoogra oil appears, in certain cases, to produce some cures.

Three cases of leprosy have been recently found in Switzerland, in a village absolutely isolated in the heart of the mountains, reached only on mule-back, and occurring in persons who had never left the country. This occurrence may be a recrudescence of an old focus. The patients have been isolated.

Trachoma.—Data on the campaign undertaken in Italy and Holland. The disease, which was extremely rare in Switzerland, is becoming more frequent there without imported cases.

In South America cases are rather numerous, but these are always imported by immigration; there exist no epidemic foci.

Protection and aid of maternity and childhood in Italy and the legislation of different countries in regard to rest for women before and after childbirth.

An outbreak of *epidemic catarrhal jaundice* in England.

Prophylaxis of diphtheria in Japan.

FURTHER STUDIES ON THE RELATIONSHIP OF ENDEMIC GOITER TO CERTAIN POTENTIAL FOCI OF INFECTION

II. IN CONNECTICUT

By ROBERT OLESEN, *Surgeon*, and NEIL E. TAYLOR, *Acting Assistant Surgeon*, *United States Public Health Service*

GENERAL CONSIDERATIONS

A knowledge of whether goiter is caused by foci of infection within the body is of manifest importance in preventing and treating the malady. However, the determination of this fact is often difficult because of the many factors involved. In determining whether a certain thyroid enlargement is due to diseased tonsils it is not easy to eliminate the possibility that an infected nasal sinus, gall bladder, or other inflammatory process likewise is contributing to the abnormal status of the gland. In the present investigation no opportunity was afforded for determining the presence of foci of infection other than those presumably existing in decayed teeth and diseased tonsils. Therefore the findings must be correspondingly qualified.

In a previous article [1] the results of a study of the thyroid glands, teeth, and tonsils of 1,341 white boys and 1,576 white girls in eight schools in Cincinnati, Ohio, were set forth. From these examinations it was concluded that no decisive relation between enlarged thyroids and potential foci of infection, presumably present in decayed teeth and diseased tonsils, had been demonstrated. It was pointed out, however, that the number of children included in the study was small and that additional investigations were desirable before it could be concluded that such a relationship was nonexistent.

While making a thyroid survey in the State of Connecticut an opportunity was afforded for examining the teeth and tonsils of 5,797 boys and 6,608 girls in 28 localities. As a result of this study it is possible to present additional facts concerning the possible relationship between thyroid enlargements and certain abnormal conditions of the teeth and tonsils. Approximately four times as many children

[1] Olesen, Robert, and Taylor, Neil E.: The Relationship of Endemic Goiter to Certain Potential Foci of Infection. Pub. Health Rep., vol. 41, No. 13, pp. 557-571, Mar. 26, 1926. (Reprint No. 1060.)

were included in the Connecticut survey as in the previously reported Cincinnati study. It should be noted, however, that thyroid enlargement is much less frequent in Connecticut than in Cincinnati. The results of the Connecticut study are quite different and more clear-cut than were those of the smaller Cincinnati investigation.

1. SCOPE OF THE CONNECTICUT STUDY

The present study concerning the possible effect of foci of infection upon the thyroid gland was carried on while a thyroid survey was being made in the Connecticut schools during the early part of the 1925–26 session. All of those examined for thyroid enlargement, dental caries, and tonsillar abnormalities were white children, except approximately 150 colored children who have been included in the calculations. Most of the children included in the study attended the high schools in the communities visited. In some instances, in which relatively few children were present in the high schools, examinations were also made in the seventh and eighth grades of the grammar schools.

By examining children in representative communities in various parts of the State a cross section of the upper grammar and high school population was obtained. This sampling included various school ages, grades, sections of cities, environment, and social status. Consequently the present study is believed to offer additional though not necessarily conclusive evidence concerning the possible relationship between simple enlargement of the thyroid gland and such potential foci of infection as may be present in carious teeth and diseased tonsils.

The observations were all made by the writers and included, for the purposes of the present investigation, the condition of the teeth and tonsils. Notations were made concerning the degree of dental decay (slight or marked) and the number of teeth involved. With regard to the tonsils, observations were made of the degree of enlargement (slight, moderate, or marked) and also whether the organs were cryptic in character. Records were also kept of the number of children with apparently normal tonsils and of those in whom the tonsils had been removed by operative procedure. Coincidently the condition of the thyroid gland was ascertained.

2. LIMITATIONS OF OBSERVATIONS ON TEETH AND TONSILS

Teeth.—The existence of dental decay does not necessarily imply focal infection. In fact, it is probable that septic absorption occurs most frequently when decay has extended to the root canal. Obviously it was difficult to determine this point accurately during the survey. However, many of the markedly decayed teeth were pre-

sumably serving as sources of infective material. It is also reasonable to assume that the possibilities for systemic infection are increased in the presence of successively greater numbers of markedly decayed teeth. In classifying the degrees of decay a distinction was made between the slight and marked forms. In the former class were included teeth with small yet distinct and presumably easily remediable defects. Under the heading "markedly decayed" were included teeth having large cavities of considerable duration, perforations of the pulp cavity, and those obviously in need of extraction.

Filled and missing teeth.—An obvious omission in the present investigation is the lack of information concerning filled and missing teeth. It is readily conceivable that a decayed tooth may have served as a focus of infection prior to being filled. It may also be said that filled teeth are usually a sign of efficient dental hygiene, the necessary corrective steps being taken early, possibly before any opportunity for systemic infection was afforded. Furthermore, in a tooth capable of salvage by filling the decay has seldom penetrated the root cavity, thereby lessening the opportunity for harmful influence.

With regard to missing teeth it may be admitted that teeth are usually extracted because of such extensive decay that filling is impracticable. Whether or not decayed teeth prior to extraction exert temporarily or permanently deleterious effects upon the thyroids is obviously a matter for more extended study than was possible during the present investigation. Such a possibility must certainly be considered, for it may be that enlargement of the thyroid remains after the infective focus has been removed.

Tonsils.—Enlarged tonsils, of course, are not necessarily diseased and do not invariably serve as sources of infection. Consequently the classification of enlarged tonsils as slight, moderate, and marked may be regarded as an indication of degree of hypertrophy rather than of invariable or actual infectivity.

In interpreting the significance of thyroid conditions in individuals in whom the tonsils have been removed it is obvious that caution must be exercised. Tonsils are usually removed because of disease or suspected infectivity. Thyroid enlargement may develop prior to removal of the tonsils and continue afterwards, thereby complicating subsequent observations.

3. METHODS

In classifying the thyroid enlargments of the Connecticut school children use was made of the standards devised during the Cincinnati survey.[2] The usual method of inspection and palpation was employed

[2] Olesen, Robert: Thyroid Survey of 47,493 Elementary School Children in Cincinnati. Pub. Health Rep., vol. 39, No. 30, July 25, 1924. (Reprint No. 941.)

in reaching a decision as to the approximate size and extent of each thyroid gland. In examining the teeth and tonsils individual tongue blades were used while each child stood in a favorable light and position.

Owing to the relatively small number of some of the enlargements, it was found desirable to reduce the five degrees of enlargement customarily cited to two. Thus, the very slight and slight enlargements were combined and termed "slight." Moderate, marked, and very marked thickenings were combined and called "marked."

4. RESULTS

The data secured during the study are presented in this section. Moreover, by means of tables, charts, and analysis of the available material, the indicated presence or absence of a relationship between thyroid enlargement and infectious foci in teeth and tonsils will be brought out.

Ages, sex, and numbers of children.—Of the 12,405 children included in the survey 5,797 were boys and 6,608 were girls, Among the boys 402 instances of thyroid enlargement, a percentage of 7, were noted. A greater number of enlargements, 1,945, or 29.4 per cent, were recorded among the girls. The number of children of each age, in addition to the number and percentage of thyroid involvements are set forth in Table 1. It will be noted that the percentage of thyroid enlargements of all degrees is considerably greater among the girls, the ratio of enlargement in girls to that in boys being approximately 5 to 1. The usual decline in the percentage of involvements among the boys after the age of 14 and the steady though uneven increase among the girls of higher ages are particularly noteworthy.

Numbers and degrees of thyroid enlargement.—The number and percentage of each degree of thyroid enlargement, at each age between 10 and 18 years, as well as for all ages combined, are presented in Table 1. It will be seen that slight enlargements were present to the extent of 7 per cent among the boys and 28.1 per cent among the girls. Only 1 marked enlargement was found among the boys, whereas 91 involvements of similar degree were present among the girls.

As the writers have had experience in making thyroid surveys in other sections of the country, it is possible to compare the relative prevalence of endemic goiter among the boys and girls included in the Connecticut survey with similar groups in Cincinnati, for instance. Endemic goiter is, of course, much less prevalent in Connecticut than in Cincinnati. Furthermore, in marked contrast to conditions in Cincinnati, boys in Connecticut seldom have moderate or marked thyroid enlargements. Among the boys and girls in Connecticut

marked involvements prevail in a proportion of 1 to 93, as compared with the Cincinnati ratio of 1 to 7. The steady increase in the percentage of marked enlargements as the higher ages are reached among the girls is clearly shown in Table 1.

TEETH

The results of the dental examinations in Connecticut are presented in Table 2, in which certain groupings have been made. Thus, the ages of 10 and 11, 12 and 13, 14 and 15, 16 and 17, and 18 years and over have been combined, respectively. The thyroid enlargements have been designated as slight and marked.

Sound teeth.—An examination of Table 2 shows that sound teeth were present in 70.6 per cent of the 5,797 boys and 75 per cent of the 6,608 girls included in the study. This indicates a slight and usual superiority in oral hygiene among the girls. Of the 5,395 thyroid-normal boys, 71.1 per cent had teeth without signs of decay, while a smaller percentage, 63.7 per cent, of the thyroid-enlarged boys were also free from dental defects. Among the girls, 76.4 per cent of the thyroid-normal and 71.6 per cent of the thyroid-enlarged individuals had no evidence of dental decay. These figures indicate the more frequent occurrence of normal teeth in thyroid-normal boys and girls.

A study of the percentages of normal teeth among thyroid-normal and thyroid-enlarged boys and girls of the several age groups shows the advantage to rest consistently with those having normal thyroids. Moreover, the superiority in normal teeth among the thyroid-normal individuals assumes an even trend through the principal age groups.

Dental caries.—Dental decay was noted more frequently among boys, the slight degree of decay being a trifle more frequent than the marked form. Thus, 14.1 per cent of all the boys and 12.7 per cent of all the girls examined had slight decay, while 15.3 per cent of the boys and 12.3 per cent of the girls had marked decay.

Slight dental decay.—A further examination of the figures set forth in Table 2 indicates a consistently greater prevalence of slightly decayed teeth among the thyroid-enlarged girls and boys in all age groups. While in several instances the differences between the percentages of slightly decayed teeth among individuals having normal or enlarged thyroid glands are not marked, nevertheless they are uniform in direction.

Marked dental decay.—The differences in the numbers and percentages of marked dental decay in the two groups under consideration are also set forth in Table 2. As is the case with the prevalence of slight decay, the markedly carious conditions are more frequent among the boys and girls with thyroid enlargement, the one exception

being the 10 and 11 year group of girls. In this group marked dental decay is more frequent among the thyroid-normal girls.

From the foregoing observations it is apparent that in the groups studied normal teeth are more frequent among thyroid-normal boys and girls, while both slight and marked dental decay are more common, with one exception, among individuals with thyroid enlargement.

Dental decay and degree of enlargement.—Whether or not marked thyroid enlargement is more frequently associated with dental decay than slight enlargement is another point concerning which some information is available in Table 2. Because of the lack of marked thyroid enlargements among the boys little information concerning this point can be obtained from this portion of the table. However, an examination of the data relating to the girls shows that 15.3 per cent of the girls with slight dental decay and 18.7 per cent of those with marked decay have marked thyroid enlargement, while only 14.1 per cent of those with slight decay and 14 per cent of those with marked decay have slight thyroid enlargement. These differences are apparent not only in the several age groups in so far as marked dental decay is concerned, but also in two of the three groups in which slight decay is involved. Apparently both slight and marked dental decay are slightly more frequent among individuals with marked thyroid involvement.

TONSILS

The data relating to the conditions of the tonsils in the children examined are presented in Table 3. In this table the tonsillar conditions have been divided according to normality, absence, enlargement, and cryptic degeneration. The thyroid enlargements are shown as "slight" or "marked." As in Table 2, several age groupings have been made.

General considerations.—Of all the boys examined 47.6 per cent had normal tonsils, while a slightly larger percentage of girls, 48, also had normal tonsils. Tonsils had been removed by operative procedure in 29.8 per cent of the boys and 34.1 per cent of the girls. Enlarged tonsils were encountered in 19 per cent of all the boys and 14.6 per cent of the girls. Among the boys 3.6 per cent of the tonsils were enlarged and cryptic, whereas among the girls a slightly smaller percentage, 3.3, were similarly affected. From these comparisons it is clear that the girls have slight advantages.

Normal tonsils.—Among boys and girls of all ages normal tonsils were distinctly more frequent among the children who had no evidence of thyroid enlargement. The same distinction prevailed among the girls of the different age groups. Among the boys of the 10 and 11 and the 12 and 13 year groups, however, normal tonsils were more frequent among the thyroid-enlarged individuals. In the remaining

age groups the advantage in normal tonsils rested with the thyroid-normal boys.

Tonsils removed.—A larger percentage of the girls than boys had been subjected to operation for removal of tonsils. Thus 31.5 per cent of the thyroid-normal and 40.1 per cent of the thyroid-enlarged girls of all ages were without tonsils—a considerable difference in favor of the latter. Among the thyroid-normal boys of all ages tonsillectomies had been performed in 29.8 per cent, while a slightly smaller percentage of the thyroid-enlarged boys, 29.1 per cent, had had similar operations.

When the differences between the several groups of thyroid-normal and thyroid-enlarged children are considered with regard to the absence of tonsils through operation, some interesting facts are gleaned from Table 3. Absence of tonsils was noted more frequently among boys and girls with thyroid enlargement, the single exception being the children of the 10 and 11 year group. These findings may be interpreted in several ways. In the first place, tonsils may have been removed because of disease, the thyroid being enlarged coincidently. After tonsillectomy the glandular involvement may have remained, to be noted during the present examination. Secondly, it may be suggested that absence of tonsils encourages to some extent thyroid enlargement. Possibly the normally functioning tonsil prevents the entry through the throat of agents which cause hypertrophy of the thyroid. Under the circumstances tonsillectomy appears to be a questionable procedure unless there is manifest evidence of tonsillar disease.

Hypertrophy of tonsils.—When the observations were made three degrees of tonsillar enlargement, "slight," "moderate," and "marked" were recorded. However, owing to the comparatively few enlargements of each size the several degrees were combined. An examination of the data displayed in Table 3 shows clearly that hypertrophy of the tonsils is consistently more frequent among the thyroid-enlarged individuals in all of the age groups among both boys and girls. Thus, 18.5 per cent of the thyroid-normal and 26.6 per cent of the thyroid-enlarged boys of all ages had hypertrophied tonsils. Among the girls of all ages enlarged tonsils were present to the extent of 14.4 per cent in the thyroid-normal and 15.3 per cent of the thyroid-enlarged individuals. Similar differences are present in the various age groups.

Cryptic tonsils.—Presumably the tonsils included in this grouping had a pathological status and were capable of exerting a deleterious influence upon such glands as the thyroid. Cryptic tonsils were more frequently encountered among the boys than among the girls, and also more frequently among the thyroid-enlarged than among the thyroid-normal children. The latter distinction is not clearly

defined in the separate age groups of boys. In fact, cryptic tonsils occur among the thyroid-normal boys of several of the age groups to a considerably greater extent than among the thyroid-enlarged boys. Among the girls of the different age groups, however, the excess of cryptic tonsils among the thyroid-enlarged is consistently and clearly apparent.

SUMMARY

1. Examinations were made of the teeth and tonsils of 5,797 boys and 6,608 girls in 28 localities in Connecticut for the purpose of determining whether there was a relationship between potential foci of infection in these particular structures and thyroid enlargement.

2. Records were made of slight and marked thyroid enlargements as well as slight and marked decay of teeth. The number of apparently normal tonsils, the absence of tonsils by operation, enlargement, and cryptic degeneration, were also recorded.

3. Slight thyroid enlargements prevailed to the extent of 7 per cent among the boys and 29.4 per cent among the girls. One marked thyroid enlargement was found among the boys. Among the girls there were 91, or 1.3 per cent, of marked enlargements.

4. Sound teeth were found slightly more frequently among girls than among boys. Teeth without decay were found more frequently and consistently among the thyroid-normal children of all age groups. Conversely, slight and marked decay were more common, except in one age group, among the thyroid-enlarged individuals.

5. Approximately one-third of the girls and a slightly smaller percentage of boys had had their tonsils removed by operation. Normal tonsils were more frequent among the girls. Hypertrophied tonsils and cryptic tonsils were less frequent among the girls than among the boys.

6. Normal tonsils were more frequent among thyroid-normal boys and girls of all ages. With the exception of two age groups among the boys, all of the other age groups indicate a greater frequency of normal tonsils among thyroid-normal individuals.

7. Absence of tonsils was noted more frequently among boys and girls with thyroid enlargement.

8. Hypertrophied tonsils were consistently though not markedly more frequent among boys and girls with thyroid enlargement.

9. Cryptic tonsils were more frequent among children with thyroid enlargement, the distinction being more clear among the girls.

COMMENT

On the basis of the material gathered during the present investigation it appears that slight and markedly decayed teeth, as well as hypertrophied and cryptic tonsils, were more frequently associated with thyroid enlargement than with normal thyroid conditions. Whether or not thyroid enlargement is due to some extent to these

potential foci of infection, or whether the latter conditions are accidental or incidental, is a subject for further investigation.

While the number of children included in the present survey was small and the observations were subject to manifest limitations, nevertheless the findings are suggestive. However, before the question of relationship existing between potential foci of infection in the teeth and tonsils and thyroid enlargement can be regarded as definitely settled, it is desirable that additional studies be conducted in other sections of the country. The inclusion of a greater number of individuals, especially adults, in such an investigation might materially alter the findings of both the Cincinnati and Connecticut surveys. In addition to the effects of decayed teeth and diseased tonsils upon the thyroid, future studies of this subject should include a consideration of the influence of other foci of infection within the body.

Explanation of discrepancy between Cincinnati and Connecticut results.—It has already been pointed out that the study made in Cincinnati for the purpose of determining the possible relationship between certain foci of infection and thyroid enlargement was apparently negative. On the other hand, the results of the Connecticut investigation suggest a positive relationship between thyroid enlargement and certain infective foci. A wholly satisfactory explanation of this discrepancy can not, of course, be given. However, there is an explanation which may serve to make the problem less complicated.

Thyroid enlargements in Cincinnati are probably of the endemic type, being due largely to a deficiency of iodine. Consequently the possible etiological rôles of decayed teeth and diseased tonsils may be overshadowed to such an extent as not to be readily discernible. The thyroid enlargements which occur in Connecticut, however, are undoubtedly of the sporadic type, being produced by causes other than a deficiency of iodine. With the iodine deficiency factor largely lacking, the foci of infection come more prominently to the fore. Moreover, the extent of their detrimental influences is more apparent.

In view of the suggested deleterious influence of defective teeth and diseased tonsils upon the thyroid, it is desirable that careful oral hygiene be observed, particularly among school children. Renewed efforts to insure as nearly perfect dentature as possible, through appropriate nutritional guidance and practice as well as by competent dental prophylaxis and treatment, are recommended and urged. Moreover, appropriate treatment for enlarged and diseased tonsils is likewise advised. This injunction should not be interpreted as implying that the correction of dental defects and radical treatment of diseased tonsils is unnecessary in individuals with normal thyroid glands. Quite the contrary, remedial measures are desirable in both thyroid-normal and thyroid-enlarged persons.

TABLE 1.—*Number and percentage of normal and enlarged thyroids among 5,797 boys and 6,608 girls in 28 localities in Connecticut, according to sex, age, and degree of enlargement*

Thyroid status	Age																	
	All ages		10 and 11		12		13		14		15		16		17		18 and over	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
NUMBER OF NORMAL AND ENLARGED THYROIDS																		
Total	5,797	6,608	116	114	444	553	875	1,175	1,527	1,684	1,298	1,357	854	913	450	566	233	246
Normal	5,395	4,663	103	92	413	422	803	836	1,390	1,201	1,215	941	812	624	430	376	229	171
Enlarged	402	1,945	13	22	31	131	72	339	137	483	83	416	42	289	20	190	4	75
Slight	401	1,854	13	22	31	126	71	329	137	466	83	394	42	272	20	178	4	67
Marked	1	91				5	1	10		17		22		17		12		8
PERCENTAGE OF NORMAL AND ENLARGED THYROIDS																		
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Normal	93.0	70.6	89.0	80.7	93.0	76.3	91.8	71.1	91.0	71.3	93.6	69.3	95.1	68.3	95.6	66.4	98.3	69.5
Enlarged	7.0	29.4	11.0	19.3	7.0	23.7	8.2	28.9	9.0	28.7	6.4	30.7	4.9	31.7	4.4	33.6	1.7	30.5
Slight	7.0	28.1	11.0	19.3	7.0	22.8	8.2	28.1	9.0	27.6	6.4	29.1	4.9	29.8	4.4	31.5	1.7	27.3
Marked		1.3				.9		.8		1.1		1.6		1.9		2.1		3.2

TABLE 2.—*Number and percentage of individuals having no dental decay and slight and marked dental decay among 5,797 boys and 6,608 girls in 28 localities in Connecticut, according to ages of children and degree of thyroid enlargement*

Thyroid status	Dental condition															
	Boys								Girls							
	Number				Percentage				Number				Percentage			
	Total	Normal	Slight decay	Marked decay	Total	Normal	Slight decay	Marked decay	Total	Normal	Slight decay	Marked decay	Total	Normal	Slight decay	Marked decay
ALL AGES																
Total	5,797	4,091	816	890	100.0	70.6	14.1	15.3	6,608	4,958	938	812	100.0	75.0	12.7	12.3
Normal	5,395	3,835	751	809	100.0	71.1	13.9	15.0	4,663	3,565	583	535	100.0	76.4	12.1	11.5
Enlarged	402	256	65	81	100.0	63.7	16.2	20.1	1,945	1,393	275	277	100.0	71.6	14.1	14.3
Slight	401	255	65	81	100.0	63.6	16.2	20.2	1,854	1,333	261	260	100.0	71.9	14.1	14.0
Marked	1	1			100.0	100.0			91	60	14	17	100.0	66.0	15.3	18.7
10 AND 11 YEARS																
Normal	103	67	13	23	100.0	65.0	12.6	22.4	92	74	6	12	100.0	80.5	6.5	13.0
Enlarged	13	6	3	4	100.0	46.1	23.1	30.8	22	17	3	2	100.0	77.3	13.6	9.1
Slight	13	6	3	4	100.0	46.1	23.1	30.8	22	17	3	2	100.0	77.3	13.6	9.1
Marked																
12 AND 13 YEARS																
Normal	1,216	872	149	195	100.0	71.7	12.3	16.0	1,273	945	119	164	100.0	77.2	11.5	13.0
Enlarged	103	67	15	21	100.0	65.0	14.6	20.4	470	320	69	81	100.0	68.1	14.7	17.2
Slight	102	66	15	21	100.0	64.7	14.7	20.6	455	310	67	78	100.0	68.1	14.7	17.2
Marked	1	1			100.0	100.0			15	10	2	3	100.0	66.6	13.4	20.0

14 AND 15 YEARS

Normal	2,605	1,815	405	385	100.0	69.8	15.4	14.8	2,142	1,625	271	246	100.0	75.8	12.7	11.5
Enlarged	220	140	38	42	100.0	63.6	17.3	19.1	899	635	128	136	100.0	70.7	14.2	15.1
Slight	220	140	38	42	100.0	63.6	17.3	19.1	860	610	121	129	100.0	70.9	14.1	15.0
Marked									39	25	7	7	100.0	64.2	17.9	17.9

16 AND 17 YEARS

Normal	1,242	898	171	173	100.0	72.3	13.8	13.9	1,000	788	111	101	100.0	78.8	11.1	10.1
Enlarged	62	40	9	13	100.0	64.5	14.5	21.0	479	365	63	51	100.0	76.2	13.2	10.6
Slight	62	40	9	13	100.0	64.5	14.5	21.0	450	344	60	46	100.0	76.5	13.3	10.2
Marked									29	21	3	5	100.0	72.4	10.3	17.3

18 YEARS AND OVER

Normal	229	183	13	33	100.0	79.9	5.7	14.4	171	133	26	12	100.0	77.8	15.2	7.0
Enlarged	4	3		1	100.0	75.0		25.0	75	56	12	7	100.0	74.7	16.0	9.3
Slight	4	3		1	100.0	75.0		25.0	67	52	10	5	100.0	77.6	14.9	7.5
Marked									8	4	2	2	100.0	50.0	25.0	25.0

TABLE 3.—*Number and percentage of certain tonsillar conditions among 5,797 boys and 6,608 girls in 28 localities in Connecticut, according to age and degree of thyroid enlargement*

Thyroid status	Boys										Girls									
	Number of tonsils—					Percentage of tonsils—					Number of tonsils—					Percentage of tonsils—				
	Total	Normal	Removed	Enlarged	Cryptic	Total	Normal	Removed	Enlarged	Cryptic	Total	Normal	Removed	Enlarged	Cryptic	Total	Normal	Removed	Enlarged	Cryptic
ALL AGES																				
Total	5,797	2,755	1,726	1,103	213	100.0	47.6	29.8	19.0	3.6	6,608	3,179	2,251	963	215	100.0	48.0	34.1	14.6	3.3
Normal	5,395	2,589	1,609	1,000	197	100.0	48.0	29.8	18.5	3.7	4,663	2,404	1,471	666	122	100.0	51.5	31.5	11.4	2.6
Enlarged	402	166	117	103	16	100.0	41.3	29.1	25.6	4.0	1,945	775	780	297	93	100.0	39.8	40.1	15.3	4.8
Slight	401	165	117	103	16	100.0	41.2	29.2	25.7	3.9	1,854	747	735	286	86	100.0	40.3	34.7	15.4	4.6
Marked	1	1				100.0	100.0				91	28	45	11	7	100.0	30.8	49.4	12.1	7.7
10 AND 11 YEARS																				
Normal	103	46	39	15	3	100.0	44.7	37.8	14.6	2.9	92	34	32	19	7	100.0	36.9	34.8	20.7	7.6
Enlarged	13	7	4	2		100.0	53.8	30.8	15.4		22	6	6	7	3	100.0	27.3	27.3	31.8	13.6
Slight	13	7	4	2		100.0	53.8	30.8	15.4		22	6	6	7	3	100.0	27.3	27.3	31.8	13.6
Marked																				
12 AND 13 YEARS																				
Normal	1,216	575	372	212	57	100.0	47.3	30.6	17.4	4.7	1,258	627	401	184	46	100.0	49.9	31.9	14.6	3.6
Enlarged	103	50	17	32	4	100.0	48.6	16.5	31.0	3.9	470	198	166	82	24	100.0	42.2	35.3	17.4	5.1
Slight	102	49	17	32	4	100.0	43.0	16.7	31.4	3.9	455	195	160	74	21	100.0	42.9	35.2	17.4	4.6
Marked	1	1				100.0	100.0				15	3	6	3	3	100.0	20.0	40.0	20.0	20.0

14 AND 15 YEARS																				
Normal	2,605	1,319	681	523	82	100.0	50.5	26.2	20.1	3.2	2,142	1,207	554	333	48	100.0	56.3	25.9	15.6	2.2
Enlarged	220	84	70	55	11	100.0	38.2	31.8	25.0	5.0	899	369	340	142	48	100.0	41.1	37.8	15.8	5.3
Slight	220	84	70	55	11	100.0	38.2	31.8	25.0	5.0	860	355	324	136	45	100.0	41.3	37.7	15.8	5.2
Marked											39	14	16	6	3	100.0	35.9	41.0	15.4	7.7
16 AND 17 YEARS																				
Normal	1,242	545	422	226	49	100.0	43.8	34.0	18.2	4.0	1,000	468	402	111	19	100.0	46.8	40.2	11.1	1.9
Enlarged	62	24	24	13	1	100.0	38.7	38.7	21.0	1.6	479	192	215	55	17	100.0	40.1	44.9	11.5	3.5
Slight	62	24	24	13	1	100.0	38.7	38.7	21.0	1.6	450	181	198	55	16	100.0	40.2	44.0	12.2	3.6
Marked											29	11	17		1	100.0	38.0	58.6		3.4
18 YEARS AND OVER																				
Normal	229	104	95	24	6	100.0	45.4	41.5	10.5	2.6	171	68	82	19	2	100.0	39.8	47.9	11.1	1.2
Enlarged	4	1	2	1		100.0	25.0	50.0	25.0		75	10	53	11	1	100.0	13.3	70.7	14.7	1.3
Slight	4	1	2	1		100.0	25.0	50.0	25.0		67	10	47	9	1	100.0	14.9	70.2	13.4	1.5
Marked											8		6	2		100.0		75.0	25.0	

PUBLIC HEALTH ENGINEERING ABSTRACTS

Value of Under Water Lighting in Outdoor Swimming Pools. Bengt Norman Bengtson, M. D. *The Nation's Health,* vol. 8, No. 11, November 15, 1926, pp. 753–754. (Abstract by Stephen DeM. Gage.)

The writer describes experiments with a 500-watt insulated lamp during night bathing at a deep pool in Garfield Park, West Chicago. One lamp properly shaded had a radius of illumination of 20 to 30 feet. Under water illumination is very attractive and more effective than overhead spot or flood lighting. It would probably reduce danger of accidents during night bathing. It makes dirt and turbidity very conspicuous, tending toward more careful operation to maintain a clean, bright water.

The author also describes experiments indicating that underwater lighting might have some bactericidal effect, thus aiding in sanitary control.

Swimming Pools and Other Public Bathing Places (Standards for Design, Construction, Equipment, and Operation). *American Journal of Public Health,* vol. 16, No. 12, December, 1926, pp. 1186–1201. (Abstract by Stephen DeM. Gage.)

Full text of report of the joint committee with the State conference of sanitary engineers to the public-health engineering section of American Public Health Association, October 12, 1926. With some minor changes in the text, and with addition of standards for water quality from the 1923 report, this report is identical with the report to conference of State sanitary engineers in May, 1926. The committee has attempted to make this report as full and complete as possible to serve as a guide to designers, operators, and administrative officials.

Comparative Standing of Detroit Swimming Pools. Monthly report, Detroit Health Department, December, 1926. (Abstract by Stephen DeM. Gage.)

A tabulation showing the relative standing of 35 different pools, October, November, and December, 1926, with attendance and average bacterial analyses of the water during December. Thirty-three of the pools are rated at grade A, having passed the department standard for the month. The most significant features of this tabulation are the bacteria and *B. coli* results. Twenty pools showed a median bacteria count of zero, 27 pools did not show colon bacillus in 100 cubic centimeters in any sample collected during the month, and 6 other pools did not show more than 10 *B. coli* per 100 cubic centimeter in any samples.

Regulation of Drainage Apparatus Called Septic Tanks. A. Calmette and E. Rolants *Rev. d'Hyg.,* 47 (1925) No. 6, pp. 481–489; abstract in *Chem. Abs.,* 19 (1925), No. 20, p. 3136. From Experi-

ment Station Record, United States Department of Agriculture, vol. 55, No. 8, December, 1926, p. 783.

"Proposed regulations for septic tanks for isolated residences and unsewered parts of cities in France are briefly set forth. The regulations require a trickling filter or bacterial bed to follow tank treatment. The size of the tank must provide a minimum of 250 liters (66 gallons) per person where water-closets only are connected and 500 liters per person where kitchen wastes are added. Bath water, roof run-off, etc., are to be excluded. The trickling filter must have a minimum depth of 1 meter (3.28 feet) and an area of 1 square meter for every 10 people, with a minimum total area of 0.5 square meter. If the effluent contains more than enough organic matter to produce 200 parts per million of ammonia it must be diluted. The effluent must not contain more than 30 parts per million of suspended organic matter, and a stoppered 150-cubic centimeter sample kept 7 days at 30° C. (86° F.) must not show evidence of putrefaction."

The Delimitation of Drainage Areas. F. O. Stanford. *Journal of Royal Sanitary Institute*, vol. 47, No. 4, October, 1926, pp. 303–310. (Abstract by Fred Almquist.)

The idea of cooperation between towns on the same drainage area for drainage and sewerage is stressed, from both the efficiency and economical standpoints. Very often a stream which is the center of a drainage area is the convenient boundary between towns; and all too often the towns do not get together, but put in separate drainage systems or sewerage systems with a result, probably, of lower efficiency and increasing cost. The establishment of a common policy with proper authority is desired for all matters affecting a river. The author suggests that, should it be necessary at any time to alter the boundary of an administrative area, the boundary be rectified according to watershed lines rather than water course.

Sewage Treatment for New York City. Kenneth Allen. *Water Works Magazine*, vol. 65, No. 12, December, 1926, pp. 588–592. (Abstract by R. C. Beckett.)

A discussion of the general use of fine screening, grit chambers, tanks, various types of disposal plants, sludge disposal, and chlorination as to their use as applied in New York City conditions.

Probably all these methods, namely, fine screening, sedimentation, and sedimentation plus further oxidation will be necessary in New York City, depending on location and conditions nearby. A beginning has been made in installing several fine screening plants now operating or under construction. An activated sludge plant is now under construction.

Disposal of Sewage and Excreta from Residences. Committee report presented at the conference of State Sanitary Engineers, June,

1926. *Engineering & Contracting*, vol. 65, No. 9, September, 1926, pp. 425–428. (Abstract by C. C. Ruchhoft.)

The septic tank is considered the most suitable device for preliminary treatment of sewage from residences. The tank should not be closer than 100 feet to a well and on ground sloping away from the same. Rectangular tanks are desirable, but circular tanks are permitted. Using an estimated flow of 50 gallons per capita, the tank should have a 24-hour retention period. Tank volumes of 300 or 400 gallons are desirable for individual residences. It is recommended that the tank be not less than 4 feet deep, not less than 3 feet wide, and from 4.5 to 6 feet long.

Distribution trench.—The distributer line should be of vitrified sewer tile with cemented joints. The distribution laterals should be of 3 or 4 inch 1-foot length farm tile laid in a 2-foot trench containing from 6 inches to 1 foot of cinders, gravel, or crushed rock below the tile. The tile should be as near the surface as is consistent with adequate protection of it. Average practice for the distance from center to center of the laterals is about 10 feet. The recommendations for the total length of distribution lines vary from 20 to 60 feet per capita, depending upon soil conditions.

Excreta disposal.—Data and discussion indicated a trend toward uniformity in privy sanitation. General specifications for pit, septic concrete vault, and chemical privies are discussed.

Observations on the Michigan Septic Tank. O. E. Robey (Michigan Sta. Quart. Bul., 9 (1926), No. 1, p. 22). From The Experiment Station Record, United States Department of Agriculture, vol. 55, No. 7, November, 1926, p. 683.

"A brief report of an examination of a tank in operation since 1915 and one in operation since 1918 is presented. The results indicate that a septic tank will work satisfactorily when near the surface, and that the tile system may be shallow even under somewhat adverse conditions."

Requirements for the Pasteurization of Milk and Methods of Enforcement. Walter W. Scofield, Chief, Bureau of Food and Drugs, Department of Health, Trenton, N. J. *Public Health News*, vol. 12, No. 1, December, 1926, pp. 324–330. (Abstract by H. A. Whittaker.)

The writer describes the importance of milk as a food, and then points out the need of proper control in safeguarding the milk supplies of the State. He emphasizes the importance of pasteurization as a public health measure, and stresses the necessity for proper supervision of pasteurization in order to insure safe milk. Certain fundamental requirements for pasteurization are discussed, and information is given concerning the methods of testing the efficiency of pasteurizers. He describes the method recommended by the Bureau

of Dairying, United States Department of Agriculture, in which a culture of *B. prodigiosus* is used as a testing agent in determining whether the milk is held the required time in continuous-flow pasteurizing apparatus. The importance of thoroughly testing the apparatus for washing milk bottles is discussed. Reference is made to the importance of testing the strength of the chemicals when chemicals are used in bottle-washing machines.

The author concludes by stressing the importance of State supervision of the pasteurization plants and the desirability of requiring that all plants be licensed by the State authorities.

The Trade Pasteurization of Milk and the Public Health. Henry Kenwood, emeritus professor of hygiene and public health, University of London. *Journal of the Royal Sanitary Institute,* vol. 47, No. 5, November, 1926, pp. 355–360. (Abstract by George W. Putnam.)

With chemical preservatives forbidden in 1912, pasteurization has been extensively adopted in England to prevent souring, until at present from 50 to 80 per cent of the milk supply of some large towns is so treated. The advantages of pasteurization are enumerated as follows: (1) It prolongs the keeping quality of milk; (2) it is a protection against losses by souring and outbreaks of milk-borne infection and guards against tuberculosis; (3) it helps to establish public confidence in the safety of milk and favors its increased sale.

The Ministry of Health has standardized the conditions which must be fulfilled if milk is to be sold as "pasteurized" as follows: Holding at 145° F. to 150° F. for 30 minutes; rapidly cooling to 55° F.; bacterial count not to exceed 100,000 per cubic centimeters. The method of securing these conditions is not yet standardized, but is still in the experimental stage.

The author successively disposes of the objections that pasteurization is (1) a cloak for stale and dirty milk; (2) does not destroy with certainty the tubercle bacillus; and (3) leads to a loss of vitamins. He concludes that pasteurization serves the mutual interests of both the trade and the public.

B. Coli in Market Oysters. Fred O. Tonney, M. D., and John L. White, M. D. *American Journal of Public Health,* vol. 16, No. 6, June, 1926, pp. 597–602. (Abstract by R. E. Tarbett.)

Studies were made in the laboratory of the Chicago Health Department of the *B. coli* content of the liquor of both shell and shucked oysters for the purpose of recommending standards that would be applicable to inland markets located at a distance from point of production. Studies were made of stored shell liquor, shucked oysters, shucked in laboratory, market oysters and shell oysters, and clams. Storage temperature in all cases was 5° to 8° C. It was found that shucked oysters held in storage at 5° to 8° C. showed a definite increase in *B. coli* score. Oysters gathered early in the season showed

a more rapid increase than those gathered during cold-water periods. The increase was 1,490 per cent in 11 days in the first case and 458 per cent in 12 days in the second. Freshly shucked oysters in October stored at a temperature of 5° to 8° C. maintained an average score not exceeding 140 for three days, while in December this score was not exceeded for 13 days after shucking. Living shell oysters did not increase in *B. coli* content under day storage at 5° to 8° C. from the eleventh to the eighty-third day and showed a decrease after the twenty-eighth day.

A study of 856 routine samples of shucked oysters received in the Chicago market during 1924 and 1925 showed that 71 per cent would have passed a score of 140, and 205 samples of shell oysters showed that 97 per cent would have passed a score of 50. Studies of the routine samples during the first part of the 1925–26 season showed a marked improvement over the previous seasons. It was recommended that a score not to exceed 140 be allowed for shucked oysters at first point of delivery, and a score of 50 for shell oysters and clams as found in the market.

Self-Purification of Oysters During Hibernation. Stephen DeM. Gage and Frederic P. Gorham. *American Journal of Public Health*, vol. 15, No. 12, December, 1925, pp. 1057–1061. (Abstract by R. E. Tarbett.)

The writers define hibernation as "the slowing down of biological activity as a result of reduction in temperature." Hibernation of oysters was first noticed about 1910 by a number of sanitary workers, who observed that the bacterial content of the shell liquor was abnormally low in oysters taken from polluted areas during periods of cold water. During 1910–11 this subject was studied in the Narragansett Bay section. The biology of the oyster is discussed with particular reference to the action of temperature upon the life processes.

The method of sanitary control of the oyster grounds in Rhode Island waters is outlined. Class A includes areas free from pollution and from which shellfish may be taken at all times; class C receives direct pollution and is closed, in so far as market shellfish are concerned; class B is not in a direct zone of pollution, but may show evidences of pollution at times, and shellfish may be marketed during the hibernation period when laboratory examinations have shown low *B. coli* scores.

The writers call attention to the fact that self-purification is relative, since high scores were obtained in some cases from all areas during the winter. In their studies they also found that during the higher temperature periods high scores were not uncommon in shellfish taken from unpolluted areas and low scores from badly polluted areas.

The proportion of inconsistent and abnormal results obtained was unexplainable, and, until explained, the interpretation of the sanitary examinations of market oysters is questionable.

THE STORY OF A COMMON COLD—AUTHORSHIP INCORRECTLY GIVEN

In the story of "Willie's Cold," published in Public Health Reports for February 4, 1927, page 332, taken from the Ohio Health News, credit for authorship was incorrectly given to Health Commissioner Peters of Cincinnati. Doctor Peters writes that this little health message was one of the articles released by the Science News Service of the American Public Health Association, of which his department is a subscriber.

It may be noted here that the Science News Service of the American Public Health Association furnishes to health departments and other health agencies, at a very reasonable cost, appropriate articles and stories dealing with health matters. Any health department or health worker interested in this service can obtain information regarding it by addressing Mr. John Hall, assistant secretary of the American Public Health Association, 370 Seventh Avenue, New York City.

DEATHS DURING WEEK ENDED FEBRUARY 19, 1927

Summary of information received by telegraph from industrial insurance companies for week ended February 19, 1927, and corresponding week of 1926. (From the Weekly Health Index, February 25, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 19, 1927	Corresponding week 1926
Policies in force	66, 767, 638	63, 415, 337
Number of death claims	14, 209	15, 020
Death claims per 1,000 policies in force, annual rate	11. 1	12. 4

Deaths from all causes in certain large cities of the United States during the week ended February 19, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, February 25, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 19, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 19, 1927 [2]
	Total deaths	Death rate [1]		Week ended Feb. 19, 1927	Corresponding week, 1926	
Total (68 cities)	7,724	13.6	16.0	915	1,036	[3] 77
Akron	37			10	7	108
Albany [4]	37	16.1	26.7	3	6	63
Atlanta	78			11	13	
White	34			3	8	
Colored	44	(5)		8	5	
Baltimore [4]	266	16.9	22.7	42	32	130
White	190		19.4	26	20	100
Colored	76	(5)	41.6	16	12	249
Birmingham	64	15.5	22.5	9	12	
White	33		20.0	4	6	
Colored	31	(5)	26.4	5	6	
Boston	242	15.9	17.2	35	32	98
Bridgeport	26			2	9	37
Buffalo	168	15.9	17.4	19	31	80
Cambridge	28	11.8	10.3	3	3	53
Camden	39	15.3	21.1	7	8	120
Canton	17	7.8	10.0	2	4	47
Chicago [4]	690	11.6	13.6	79	101	68
Cincinnati	155	19.6	19.4	19	14	118
Cleveland	193	10.2	12.3	21	38	56
Columbus	87	15.6	13.2	4	5	37
Dallas	60	15.0	21.2	5	9	
White	48		17.8	5	5	
Colored	12	(5)	44.4	0	4	
Dayton	44	12.7	10.3	5	1	82
Denver	95	17.1	17.2	6	4	
Des Moines	32	11.2	13.2	3	2	50
Detroit	324	12.7	13.9	71	67	112
Duluth	23	10.4	13.8	2	3	43
El Paso	30	13.7	21.5	5	6	
Erie	30			5	5	98
Fall River [4]	37	14.5	11.5	9	3	159
Flint	19	6.9	7.7	4	2	65
Fort Worth	37	11.8	12.8	4	4	
White	32		10.8	4	3	
Colored	5	(5)	27.4	0	1	
Grand Rapids	39	12.8	10.7	6	3	88
Houston	61			8	16	
White	41			7	13	
Colored	20	(5)		1	3	
Indianapolis	88	12.3	16.2	12	7	94
White	81		17.0	7	6	63
Colored	7	(5)	10.7	5	1	305
Jersey City	81	13.1	16.6	9	6	67
Kansas City, Kans	37	16.5	16.5	6	5	117
White	29		14.6	3	3	67
Colored	8	(5)	25.4	3	2	456
Kansas City, Mo	126	17.2	13.2	9	17	
Los Angeles	205			28	26	80
Louisville	98	16.0	14.3	5	13	43
White	81		11.9	4	12	39
Colored	17	(5)	27.7	1	1	70
Lowell	35	16.5	13.7	6	3	116
Lynn	23	11.4	17.5	3	8	79
Memphis	55	16.0	25.3	8	10	
White	24		18.3	5	3	
Colored	31	(5)	38.1	3	7	
Milwaukee	105	10.4	13.2	15	8	70
Minneapolis	92	10.9	13.5	13	9	73

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 64 cities.
[4] Deaths for week ended Friday, Feb. 18, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended February 19, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Feb. 19, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Feb. 19, 1927
	Total deaths	Death rate		Week ended Feb. 19, 1927	Corresponding week, 1926	
Nashville [4]	55	20.8	23.6	7	6	
White	38		17.6	4	4	
Colored	17	(5)	38.8	3	2	
New Bedford	31	13.5	13.5	5	4	87
New Haven	40	11.3	17.5	4	6	56
New Orleans	151	18.6	29.1	19	25	
White	89		22.7	7	11	
Colored	62	(5)	47.4	12	14	
New York	1,507	13.2	16.4	152	208	63
Bronx borough	180	10.1	13.2	11	15	35
Brooklyn borough	560	12.8	14.7	66	77	68
Manhattan borough	592	17.0	22.1	65	95	73
Queens borough	132	8.5	11.0	9	17	38
Richmond borough	43	15.3	16.8	1	4	19
Newark, N. J	116	13.0	12.7	19	19	94
Norfolk	29	8.4	13.2	3	4	61
White	15		8.9	2	1	65
Colored	14	(5)	20.7	1	3	53
Oakland	81	15.8	12.6	2	5	23
Oklahoma City	24			0	1	
Omaha	62	14.8	16.9	1	6	11
Paterson	39	14.1	19.3	8	4	141
Philadelphia	520	13.3	17.9	59	73	79
Pittsburgh	167	13.5	16.8	23	30	80
Portland, Oreg	102			6	6	63
Providence	70	13.0	15.4	11	18	93
Richmond	55	14.9	27.3	4	11	53
White	40		19.8	3	2	61
Colored	15	(5)	45.5	1	9	38
Rochester	87	14.0	13.3	7	11	59
St. Louis	210	13.1	13.8	18	10	
St. Paul	62	12.9	14.3	3	5	27
Salt Lake City [4]	47	18.0	11.0	6	7	91
San Antonio	54	13.3	20.3	14	13	
San Diego	42	19.0	21.8	12	3	255
San Francisco	172	15.6	14.7	8	13	50
Schenectady	19	10.7	15.1	2	3	60
Seattle	65			1	5	10
Somerville	20	10.2	12.0	4	2	144
Spokane	38	18.2	12.0	2	4	50
Springfield, Mass	40	14.2	10.1	7	7	108
Syracuse	61	16.1	14.9	7	6	90
Tacoma	29	14.1	9.3	1	1	24
Toledo	73	12.5	10.4	11	3	106
Trenton	35	13.3	16.7	5	7	87
Utica	39	19.7	15.7	0	5	0
Washington, D. C	171	16.5	23.4	26	22	150
White	99		19.8	11	9	93
Colored	72	(5)	33.9	15	13	275
Waterbury	31			2	5	47
Wilmington, Del	35	14.5	21.4	2	5	50
Worcester	50	13.4	13.2	6	4	72
Yonkers	16	7.0	9.0	1	2	23
Youngstown	35	10.8	11.1	7	8	98

[4] Deaths for week ended Friday, Feb. 18, 1927.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended February 26, 1927

ALABAMA

	Cases
Chicken pox	60
Diphtheria	39
Influenza	76
Malaria	15
Measles	235
Mumps	44
Pellagra	1
Pneumonia	75
Scarlet fever	19
Smallpox	50
Trachoma	3
Tuberculosis	102
Typhoid fever	15
Typhus fever	1
Whooping cough	49

ARIZONA

	Cases
Chicken pox	12
Diphtheria	2
Influenza	1
Measles	9
Mumps	1
Pneumonia	2
Scarlet fever	17
Tuberculosis	31

ARKANSAS

	Cases
Chicken pox	31
Diphtheria	1
Hookworm disease	3
Influenza	149
Malaria	49
Measles	29
Mumps	38
Ophthalmia neonatorum	1
Pellagra	11
Scarlet fever	12

ARKANSAS—continued

	Cases
Smallpox	14
Trachoma	1
Tuberculosis	17
Typhoid fever	10
Whooping cough	84

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Los Angeles	1
Sacramento	1
Chicken pox	808
Diphtheria	132
Influenza	79
Lethargic encephalitis	2
Measles	3,186
Mumps	290
Poliomyelitis—San Jose	1
Scarlet fever	211
Smallpox	30
Tuberculosis	172
Typhoid fever	5
Whooping cough	111

COLORADO

	Cases
Cerebrospinal meningitis	3
Chicken pox	26
Diphtheria	6
Impetigo contagiosa	2
Influenza	1
Measles	185
Mumps	10
Pneumonia	5
Scarlet fever	102
Smallpox	6
Tuberculosis	27
Whooping cough	2

CONNECTICUT

	Cases
Chicken pox	107
Diphtheria	27
German measles	3
Influenza	18
Measles	138
Mumps	36
Pneumonia (broncho)	33
Pneumonia (lobar)	41
Scarlet fever	107
Septic sore throat	1
Trachoma	1
Tuberculosis (all forms)	30
Whooping cough	36

DELAWARE

Chicken pox	6
Diphtheria	1
Measles	4
Pneumonia	2
Scarlet fever	27
Tuberculosis	1
Typhoid fever	1
Whooping cough	5

FLORIDA

Cerebrospinal meningitis	2
Chicken pox	44
Dengue	1
Diphtheria	30
Influenza	17
Malaria	1
Measles	78
Mumps	6
Pneumonia	8
Rabies	1
Scarlet fever	20
Smallpox	77
Tetanus	1
Typhoid fever	9
Whooping cough	14

GEORGIA

Chicken pox	106
Conjunctivitis (infectious)	1
Diphtheria	23
Dysentery	1
Hookworm disease	4
Influenza	298
Malaria	22
Measles	253
Mumps	53
Pellagra	2
Pneumonia	56
Poliomyelitis	2
Rabies	1
Scarlet fever	16
Septic sore throat	11
Smallpox	154
Tuberculosis	35
Typhoid fever	10
Whooping cough	49

IDAHO

Chicken pox	6
Diphtheria	1
Measles	66
Poliomyelitis—Mountain Home	1

IDAHO—continued

	Cases
Scarlet fever	20
Smallpox	1
Tuberculosis	2

ILLINOIS

Cerebrospinal meningitis—Cook County	3
Chicken pox	415
Diphtheria	118
Influenza	29
Lethargic encephalitis	1
Measles	2,306
Mumps	476
Pneumonia	306
Poliomyelitis:	
Carroll County	1
Henderson County	1
Scarlet fever	389
Smallpox	21
Tuberculosis	179
Typhoid fever	10
Whooping cough	222

INDIANA

Cerebrospinal meningitis	1
Chicken pox	85
Diphtheria	28
Influenza	46
Measles	200
Mumps	2
Pneumonia	18
Scarlet fever	208
Smallpox	92
Tuberculosis	50
Typhoid fever	4
Whooping cough	44

IOWA

Chicken pox	81
Diphtheria	32
Measles	747
Mumps	24
Scarlet fever	71
Smallpox	24
Tuberculosis	28
Whooping cough	10

KANSAS

Cerebrospinal meningitis:	
Alexander	1
Salina	1
Chicken pox	178
Diphtheria	21
German measles	9
Influenza	11
Measles	730
Mumps	72
Pneumonia	56
Poliomyelitis—Barnes	2
Scarlet fever	187
Smallpox	33
Tetanus	1
Tuberculosis	25
Typhoid fever	3
Whooping cough	60

LOUISIANA

	Cases
Cerebrospinal meningitis	1
Diphtheria	22
Influenza	15
Malaria	6
Measles	114
Pneumonia	26
Scarlet fever	23
Smallpox	6
Tuberculosis	27
Typhoid fever	9

MAINE

Cerebrospinal meningitis	1
Chicken pox	44
Conjunctivitis	5
Diphtheria	2
German measles	43
Influenza	10
Measles	177
Mumps	8
Pneumonia	22
Scarlet fever	20
Tuberculosis	3
Typhoid fever	5
Vincent's angina	1
Whooping cough	35

MARYLAND [1]

Chicken pox	179
Diphtheria	66
German measles	2
Influenza	226
Lethargic encephalitis	4
Measles	37
Mumps	30
Ophthalmia neonatorum	2
Pneumonia (broncho)	88
Pneumonia (lobar)	68
Scarlet fever	77
Septic sore throat	3
Tuberculosis	32
Typhoid fever	3
Vincent's angina	2
Whooping cough	99

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	292
Conjunctivitis (suppurative)	6
Diphtheria	100
German measles	4
Influenza	18
Measles	239
Mumps	292
Ophthalmia neonatorum	23
Pellagra	1
Pneumonia (lobar)	118
Poliomyelitis	1
Scarlet fever	588
Septic sore throat	2
Trachoma	2
Tuberculosis (pulmonary)	104
Tuberculosis (other forms)	18
Typhoid fever	7
Whooping cough	125

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	104
Measles	281
Pneumonia	166
Scarlet fever	362
Smallpox	51
Tuberculosis	99
Typhoid fever	8
Whooping cough	131

MINNESOTA

Cerebrospinal meningitis	2
Chicken pox	208
Diphtheria	31
Dysentery	1
Influenza	3
Measles	274
Scarlet fever	264
Smallpox	5
Trachoma	1
Tuberculosis	57
Typhoid fever	6
Whooping cough	34

MISSISSIPPI

Diphtheria	18
Scarlet fever	9
Smallpox	7
Typhoid fever	7

MISSOURI

Cerebrospinal meningitis	2
Chicken pox	132
Diphtheria	42
Epidemic sore throat	14
Influenza	26
Measles	229
Mumps	37
Ophthalmia neonatorum	1
Poliomyelitis	1
Rabies (in animals)	2
Scarlet fever	142
Smallpox	15
Tuberculosis	48
Typhoid fever	8
Whooping cough	48

MONTANA

Cerebrospinal meningitis [2]	18
Chicken pox	26
Diphtheria	1
Influenza	1
Measles	71
Mumps	18
Scarlet fever	79
Smallpox	5
Tuberculosis	1

NEBRASKA

Chicken pox	69
Diphtheria	4
German measles	44
Influenza	14
Measles	181
Mumps	54
Pneumonia	3

[2] Includes 10 cases in delayed report.

NEBRASKA—continued

	Cases
Scarlet fever	61
Smallpox	16
Tuberculosis	11
Typhoid fever	2
Whooping cough	33

NEW JERSEY

Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	336
Diphtheria	97
Influenza	34
Measles	55
Pneumonia	144
Poliomyelitis	1
Scarlet fever	381
Typhoid fever	7
Whooping cough	235

NEW MEXICO

Chicken pox	62
Diphtheria	1
German measles	42
Influenza	2
Measles	41
Mumps	68
Pneumonia	14
Scarlet fever	28
Smallpox	8
Tuberculosis	41
Typhoid fever	2
Whooping cough	7

NEW YORK

(Exclusive of New York City)

Chicken pox	407
Diphtheria	73
German measles	171
Lethargic encephalitis	2
Malaria	1
Measles	811
Mumps	433
Ophthalmia neonatorum	1
Pneumonia	316
Scarlet fever	309
Septic sore throat	4
Smallpox	6
Tetanus	2
Typhoid fever	11
Vincent's angina	19
Whooping cough	271

NORTH CAROLINA

Cerebrospinal meningitis	1
Chicken pox	177
Diphtheria	23
German measles	17
Measles	512
Scarlet fever	27
Septic sore throat	1
Smallpox	85
Typhoid fever	3
Whooping cough	735

[3] Includes delayed reports.

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Ottawa County	1
Chicken pox	30
Diphtheria	18
Influenza	162
Malaria	18
Measles	[3] 466
Pneumonia	63
Scarlet fever	32
Smallpox	50
Typhoid fever	13
Whooping cough	10

OREGON

Cerebrospinal meningitis	3
Chicken pox	43
Diphtheria	16
Influenza	478
Lethargic encephalitis	1
Measles	77
Mumps	23
Pneumonia	[4] 21
Scarlet fever	34
Smallpox	21
Tuberculosis	12
Typhoid fever	1
Whooping cough	19

PENNSYLVANIA

Anthrax—Philadelphia	1
Cerebrospinal meningitis—Philadelphia	2
Chicken pox	782
Diphtheria	205
German measles	132
Impetigo contagiosa	26
Lethargic encephalitis	2
Malaria	2
Measles	872
Mumps	383
Ophthalmia neonatorum	6
Pneumonia	221
Puerperal fever	1
Scabies	12
Scarlet fever	660
Tetanus	1
Trichinosis	4
Tuberculosis	112
Typhoid fever	16
Whooping cough	243

RHODE ISLAND

Cerebrospinal meningitis—Providence	1
Chicken pox	19
Diphtheria	11
Influenza	4
Mumps	10
Pneumonia	5
Scarlet fever	17
Septic sore throat	1
Tuberculosis	11
Whooping cough	10

[4] Deaths.

SOUTH CAROLINA

	Cases
Chicken pox	119
Diphtheria	23
Hookworm disease	23
Influenza	157
Malaria	68
Measles	19
Mumps	3
Pellagra	43
Poliomyelitis	6
Scarlet fever	10
Smallpox	24
Tuberculosis	54
Typhoid fever	15
Whooping cough	155

SOUTH DAKOTA

Chicken pox	21
Diphtheria	1
Influenza	14
Measles	269
Mumps	7
Pneumonia	7
Scarlet fever	76
Smallpox	6
Typhoid fever	4
Whooping cough	6

TENNESSEE

Cerebrospinal meningitis:	
Montgomery County	1
Nashville	2
Chicken pox	91
Diphtheria	17
Influenza	84
Malaria	4
Measles	240
Mumps	2
Ophthalmia neonatorum	4
Pellagra	2
Pneumonia	39
Scarlet fever	39
Smallpox	15
Tetanus	1
Tuberculosis	30
Typhoid fever	2
Whooping cough	89

TEXAS

Chicken pox	31
Diphtheria	37
Influenza	23
Leprosy	1
Measles	26
Mumps	23
Pneumonia	4
Scarlet fever	28
Smallpox	29
Trachoma	1
Tuberculosis	26
Typhoid fever	2
Whooping cough	11

UTAH

Cerebrospinal meningitis—Salt Lake City	1
Chicken pox	20
Diphtheria	6

UTAH—continued

	Cases
Influenza	4
Measles	280
Mumps	4
Pneumonia	12
Scarlet fever	14
Typhoid fever	2
Whooping cough	6

VERMONT

Chicken pox	16
Diphtheria	1
Measles	55
Mumps	38
Scarlet fever	5
Whooping cough	16

WASHINGTON

Cerebrospinal meningitis	4
Chicken pox	95
Diphtheria	18
German measles	129
Influenza	3
Measles	177
Mumps	74
Pneumonia	1
Scarlet fever	91
Septic sore throat	1
Smallpox	45
Tuberculosis	24
Typhoid fever	1
Whooping cough	9

WEST VIRGINIA

Cerebrospinal meningitis:	
Logan County	1
Marion County	1
Wetzel County	1
Wheeling	2
Chicken pox	94
Diphtheria	26
Influenza	56
Measles	108
Scarlet fever	69
Smallpox	32
Tuberculosis	18
Typhoid fever	17
Whooping cough	117

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	1
Chicken pox	89
Diphtheria	13
German measles	5
Influenza	1
Measles	32
Mumps	40
Pneumonia	22
Scarlet fever	56
Tuberculosis	10
Whooping cough	42
Scattering:	
Cerebrospinal meningitis	5
Chicken pox	145
Diphtheria	17
German measles	46
Influenza	79
Measles	569

WISCONSIN—continued

	Cases
Scattering—Continued.	
Mumps	151
Pneumonia	20
Poliomyelitis	2
Scarlet fever	232
Smallpox	14
Tuberculosis	29
Typhoid fever	2
Whooping cough	134

WYOMING

	Cases
Chicken pox	26
Diphtheria	1
German measles	21
Measles	163
Mumps	1
Paratyphoid fever	1
Scarlet fever	39
Smallpox	1

Reports for Week Ended February 19, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	42
Diphtheria	43
Influenza	24
Measles	1
Pneumonia	35
Scarlet fever	19
Tuberculosis	22
Whooping cough	21

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	18
Diphtheria	2
German measles	6
Measles	102
Mumps	7
Pneumonia	8
Scarlet fever	73
Smallpox	4
Tuberculosis	2
Whooping cough	6

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January, 1927										
Alabama	6	235	419	49	276	16	1	122	241	51
Illinois	15	568	313	5	6,041	2	2	1,567	172	52
Louisiana	4	97	128	36	362	8	1	66	48	42
Maine	0	12	96		929		1	160	0	5
Maryland	2	267	371		116		0	358	1	38
Minnesota	16	182	4		1,026		1	1,219	19	22
Missouri	7	311	139	14	1,160		2	776	81	18
New Jersey	13	517	142	1	201		1	1,311	0	14
North Carolina	0	190			689		2	304	276	24
Ohio	10	789	64		382		6	1,946	222	44
Rhode Island	0	61	25		7		1	100	0	5
Tennessee	5	151	536	29	768	13	1	341	46	132
West Virginia	3	113	232		381		0	242	29	59
Wisconsin	27	218	241		3,713		3	934	92	23

January, 1927

	Cases
Actinomycosis:	
Illinois	1
Anthrax:	
New Jersey	2
Chicken pox:	
Alabama	343
Illinois	2,117
Louisiana	90
Maine	342
Maryland	713
Minnesota	1,155
Missouri	570
New Jersey	1,520
North Carolina	860
Chicken pox—Continued.	
Ohio	2,803
Rhode Island	64
Tennessee	397
West Virginia	393
Wisconsin	1,550
Conjunctivitis:	
Maine	2
Rhode Island	1
Dengue:	
Alabama	3
Dysentery:	
Illinois	23
Louisiana	1
Maine	1
Maryland	1

	Cases
Dysentery—Continued.	
Minnesota	3
New Jersey	1
Ohio	1
German measles:	
Illinois	84
Maine	113
Maryland	5
New Jersey	107
North Carolina	28
Ohio	69
Rhode Island	5
Wisconsin	97
Hookworm disease:	
Louisiana	1
Impetigo contagiosa:	
Maryland	1
Lead poisoning:	
Illinois	25
New Jersey	3
Ohio	13
Lethargic encephalitis:	
Alabama	6
Illinois	9
Louisiana	1
Maryland	2
Ohio	2
Tennessee	2
Wisconsin	2
Mumps:	
Alabama	87
Illinois	1,016
Louisiana	23
Maine	58
Maryland	83
Missouri	113
Ohio	386
Rhode Island	23
Tennessee	26
Wisconsin	816
Ophthalmia neonatorum:	
Illinois	33
Louisiana	2
Maryland	1
Missouri	4
New Jersey	5
Ohio	90
Rhode Island	2
Wisconsin	1
Paratyphoid fever:	
Illinois	2
Louisiana	1
Maine	1

	Cases
Paratyphoid fever—Continued.	
Ohio	1
Tennessee	3
Puerperal septicemia:	
Illinois	11
Rabies in animals:	
Maryland	6
Missouri	16
Rabies in man:	
Ohio	2
Tennessee	4
Scabies:	
Maryland	1
Septic sore throat:	
Illinois	5
Maine	2
Maryland	16
Missouri	2
North Carolina	4
Ohio	1
Rhode Island	2
Tetanus:	
Illinois	2
Maryland	2
Missouri	3
Trachoma:	
Illinois	5
Missouri	3
Ohio	10
Wisconsin	1
Tularaemia:	
Illinois	5
Typhus fever:	
Alabama	6
Vincent's angina:	
Illinois	1
Maine	22
Maryland	3
Whooping cough:	
Alabama	172
Illinois	779
Louisiana	33
Maine	277
Maryland	403
Minnesota	111
Missouri	168
New Jersey	821
North Carolina	1,814
Ohio	914
Rhode Island	49
Tennessee	436
West Virginia	387
Wisconsin	809

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of January, 1927, to other State health departments by departments of health of certain States

Referred by—	Diphtheria	Dysentery (amebic)	Malta fever	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever
California						1	
Connecticut				1			
Illinois	2			2	3		2
Massachusetts							3
Minnesota	1	2			1	79	3
New Jersey	1		1				1
New York				3	1		3
Washington							1

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,500,000. The estimated population of the 91 cities reporting deaths is more than 29,830,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 12, 1927, February 13, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	1,669	1,836	
97 cities	770	1,045	1,035
Measles:			
38 States	17,646	11,837	
97 cities	9,973	3,796	
Poliomyelitis:			
41 States	17	9	
Scarlet fever:			
41 States	4,851	5,977	
97 cities	1,713	2,265	1,334
Smallpox:			
41 States	1,143	883	
97 cities	308	146	132
Typhoid fever:			
41 States	177	235	
97 cities	37	41	38
Deaths reported			
Influenza and pneumonia:			
91 cities	1,371	984	

City reports for week ended February 12, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	14	1	0	0	0	1	2	4
New Hampshire:									
Concord	22,546	0	1	0	0	0	52	0	0
Manchester	83,097	0	3	0	0	1	0	0	1
Vermont:									
Barre	10,008	0	0	0	0	0	30	0	1
Burlington	24,089	0	1	1	0	0	0	1	0

City reports for week ended February 12, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—contd.									
Massachusetts:									
Boston	779,620	106	61	46	5	1	54	88	28
Fall River	128,993	8	5	4	1	0	0	3	0
Springfield	142,065	3	3	4	0	0	1	2	0
Worcester	190,757		5						
Rhode Island:									
Pawtucket	69,760	3	1	1	0	0	0	1	3
Providence	267,918	0	11	5	0	0	0	0	8
Connecticut:									
Bridgeport	(1)	0	9	5	0	0	5	1	4
Hartford	160,197	7	8	0	1	0	0	0	8
New Haven	178,927	19	2	1	0	0	0	1	5
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	43	14	5		2	3	21	18
New York	5,873,356	357	195	254	102	22	32	314	230
Rochester	316,786	6	11	9		2	2	1	5
Syracuse	182,003	15	6	1		0	5	7	2
New Jersey:									
Camden	128,642	14	5	20	1	1	2	0	5
Newark	452,513	18	22	9	13	1	5	33	6
Trenton	132,020	5	5	1	0	1	0	0	2
Pennsylvania:									
Philadelphia	1,979,364	161	79	71		18	4	74	61
Pittsburgh	631,563	72	20	9		10	32	0	20
Reading	112,707	3	4	2		0	6	42	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	21	8	12	0	6	0	15	11
Cleveland	936,485	167	33	58	5	3	3	6	26
Columbus	279,836	23	4	2	0	1	8	2	5
Toledo	287,380	72	7	3	0	0	4	0	9
Indiana:									
Fort Wayne	97,846	7	3	2	0	1	61	0	1
Indianapolis	358,819	63	11	6	0	1	15	14	14
South Bend	80,091	8	1	2	0	0	31	0	3
Terre Haute	71,071	3	2	0	0	0	11	0	2
Illinois:									
Chicago	2,995,239	140	96	89	27	11	686	58	74
Peoria	81,564	10	0	0	0	0	58	10	0
Springfield	63,923	7	1	3	0	0	225	0	0
Michigan:									
Detroit	1,245,824	139	62	64	10	7	12	88	31
Flint	130,316	17	6	2	0	1	3	0	5
Grand Rapids	153,698	7	3	1	0	1	0	2	4
Wisconsin:									
Kenosha	50,891	14	2	0	0	0	77	26	0
Madison	46,385	20	1	0	0	0	3	2	0
Milwaukee	509,192	110	18	26	1	1	39	46	13
Racine	67,707	23	2	1	0	0	8	23	0
Superior	39,671	0	1	0	0	0	0	0	3
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	5	2	0	0	0	51	0	0
Minneapolis	425,435	89	20	14	0	0	8	2	10
St. Paul	246,001	41	15	3	0	5	4	0	9
Iowa:									
Davenport	52,469	1	1	0	0		19	1	
Des Moines	141,441	2	3	1	0		9	0	
Sioux City	76,411	9	2	1	0		77	1	
Waterloo	36,771	4	0	0	0		63	0	
Missouri:									
Kansas City	367,481	88	9	4	0	1	29	7	11
St. Joseph	78,342	1	2	2	0	1	0	0	7
St. Louis	821,543	50	51	45	1	0	18	36	

[1] No estimate made.

City reports for week ended February 12, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued									
North Dakota:									
Fargo	26,403	1	0	0	0	0	9	2	2
South Dakota:									
Aberdeen	15,036	6	0	0	0		5	2	
Sioux Falls	30,127	3	1	0	0		0	0	
Nebraska:									
Lincoln	60,941	5	1	1	0	0	45	1	0
Omaha	211,768	15	5	3	0	0	79	19	2
Kansas:									
Topeka	55,411	18	2	3	0	0	5	0	1
Wichita	88,367	45	4	3	0	0	2	0	4
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	2	2	0	0	1	0	5
Maryland:									
Baltimore	796,296	144	32	48	31	2	2	7	34
Cumberland	33,741	1	1	2	0	0	0	0	2
Frederick	12,035	0	0	2	0	0	0	0	0
District of Columbia:									
Washington	497,906	94	19	25	12	3	3	0	11
Virginia:									
Lynchburg	30,395	5	1	3	0	0	2	1	1
Norfolk	(1)	17	3	3	0	0	12	1	10
Richmond	186,403	7	4	17	0	4	105	1	3
Roanoke	58,208	2	1	1	0	0	1	0	3
West Virginia:									
Charleston	49,019	14	1	1	0	0	0	1	2
Wheeling	56,208	7	1	0	0	0	4	0	3
North Carolina:									
Raleigh	30,371	49	0	2	0	0	2	0	1
Wilmington	37,061	16	0	0	0	0	0	4	2
Winston-Salem	69,031	18	0	1	0	0	1	9	1
South Carolina:									
Charleston	73,125	1	0	0	30	0	0	1	2
Columbia	41,225	13	0	1	0		0	6	
Greenville	27,311	3	0	0	0	0	0	0	2
Georgia:									
Atlanta	(1)	8	3	10	61	3	45	0	2
Brunswick	16,809	0	0	0	0	0	0	0	0
Savannah	93,134	6	1	0	9	0	0	0	6
Florida:									
Miami	69,754	11	2	1	2	0	2	13	1
St. Petersburg	26,847		0			0			3
Tampa	94,743	3	2	5	0	1	21	0	3
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	2	0	1	0	0	2
Louisville	305,935	13	7	1	3	0	0	3	8
Tennessee:									
Memphis	174,533	31	3	0	0	0	7	0	4
Nashville	136,220	5	1	1	0	3	1	0	3
Alabama:									
Birmingham	205,670	15	3	6	10	3	44	5	4
Mobile	65,955	6	0	1	0	0	37	0	1
Montgomery	46,481	13	1	1	0	0	0	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	2	1	0	0		3	2	1
Little Rock	74,216	1	1	0	0	0	1	0	1
Louisiana:									
New Orleans	414,493	6	12	12	7	3	95	0	19
Shreveport	57,857	11	0	1	0	0	1	4	1
Oklahoma:									
Oklahoma City	(1)	4	1	0	6	1	1	0	4

[1] No estimate made.

City reports for week ended February 12, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
WEST SOUTH CENTRAL—continued									
Texas:									
Dallas	194,450	13	6	5	4	4	7	3	3
Galveston	48,375	0	0	1	0	0	0	0	1
Houston	164,954	11	4	7	0	1	2	12	6
San Antonio	198,069	2	2	10	0	1	0	0	3
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	5	0	1
Great Falls	29,883	2	1	2	0	1	26	0	2
Helena	12,037	0	0	1	0	0	0	0	0
Missoula	12,668	1	0	0	0	0	0	18	1
Idaho:									
Boise	23,042	1	0	0	0	0	43	2	0
Colorado:									
Denver	280,911	29	13	11	-------	6	651	0	4
Pueblo	43,787	4	2	2	0	0	3	0	1
New Mexico:									
Albuquerque	21,000	3	0	0	1	0	32	0	0
Arizona:									
Phoenix	38,669	1	1	0	0	2	0	0	4
Utah:									
Salt Lake City	130,948	22	3	1	0	1	147	2	7
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	36	8	9	0	-------	26	40	-------
Spokane	108,897	15	4	0	0	-------	135	0	-------
Tacoma	104,455	15	2	5	0	0	3	0	4
Oregon:									
Portland	282,383	5	9	8	80	5	32	0	13
California:									
Los Angeles	(1)	111	41	34	49	4	429	23	18
Sacramento	72,260	4	3	1	0	0	110	20	2
San Francisco	557,530	36	23	15	16	2	147	55	9

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	4	2	0	0	0	1	0	1	0	8	21
New Hampshire:											
Concord	0	1	0	0	0	0	0	0	0	0	11
Manchester	3	0	0	0	0	0	0	0	0	0	12
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	6
Burlington	1	0	0	0	0	0	0	0	0	1	4
Massachusetts:											
Boston	70	145	0	0	0	8	1	0	0	21	244
Fall River	3	4	0	0	0	3	1	1	0	13	28
Springfield	9	4	0	0	0	3	0	0	0	0	34
Worcester	10	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Rhode Island:											
Pawtucket	0	2	0	0	0	0	0	0	0	0	21
Providence	8	14	0	0	0	3	0	0	0	0	60

[1] No estimate made.

City reports for week ended February 12, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND—continued											
Connecticut:											
Bridgeport	9	25	0	0	0	4	0	0	0	0	29
Hartford	6	10	0	0	0	1	0	0	0	3	42
New Haven	11	7	0	0	0	1	0	0	0	4	53
MIDDLE ATLANTIC											
New York:											
Buffalo	24	24	1	0	0	11	1	0	0	12	169
New York	246	578	0	0	0	[1] 99	7	9	1	111	1,485
Rochester	13	7	0	0	0	1	0	1	0	4	79
Syracuse	18	6	0	0	0	2	0	0	0	9	50
New Jersey:											
Camden	4	9	0	0	0	2	0	0	0	0	33
Newark	25	56	0	0	0	8	0	0	0	44	99
Trenton	6	6	0	0	0	2	1	1	1	9	38
Pennsylvania:											
Philadelphia	87	147	0	0	0	43	3	0	0	36	593
Pittsburgh	41	26	0	0	0	10	0	0	0	5	172
Reading	2	1	0	0	0	0	0	0	0	1	25
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	31	1	0	0	14	1	1	0	1	133
Cleveland	44	37	1	0	0	14	1	0	0	37	212
Columbus	12	14	2	0	0	3	0	0	0	12	71
Toledo	14	14	1	2	0	7	0	0	0	41	81
Indiana:											
Fort Wayne	5	3	1	2	0	1	0	0	0	2	27
Indianapolis	10	26	12	13	0	6	0	0	0	23	117
South Bend	3	5	1	0	0	0	0	0	0	0	18
Terre Haute	2	0	1	1	0	1	0	0	0	0	17
Illinois:											
Chicago	143	122	4	1	0	52	3	1	0	71	739
Peoria	5	0	1	0	0	3	0	0	0	4	25
Springfield	2	2	0	0	0	0	0	0	0	0	14
Michigan:											
Detroit	94	119	3	2	0	26	1	1	0	79	288
Flint	8	35	1	2	0	0	0	0	0	1	34
Grand Rapids	9	13	1	0	0	1	0	0	0	6	35
Wisconsin:											
Kenosha	1	11	0	0	0	0	0	1	0	4	4
Madison	3	14	0	0	0	0	0	0	0	12	6
Milwaukee	29	55	2	1	0	7	0	0	0	38	127
Racine	5	5	1	0	0	1	0	0	0	5	15
Superior	3	9	4	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	5	1	0	0	1	0	0	0	1	16
Minneapolis	58	68	12	0	0	4	0	0	1	0	92
St. Paul	34	48	5	11	0	6	1	0	0	8	58
Iowa:											
Davenport	2	1	2	0	--------	--------	0	0	--------	0	--------
Des Moines	7	5	2	0	--------	--------	0	0	--------	0	--------
Sioux City	2	4	2	0	--------	--------	0	0	--------	1	--------
Waterloo	2	0	0	0	--------	--------	0	0	--------	4	--------
Missouri:											
Kansas City	12	37	2	6	0	4	1	0	0	8	86
St. Joseph	3	4	0	0	0	1	0	0	0	1	31
St. Louis	36	54	4	0	0	8	1	2	0	25	206
North Dakota:											
Fargo	2	5	0	0	0	0	0	0	0	1	6
South Dakota:											
Aberdeen	1	2	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	3	2	0	0	--------	--------	0	0	--------	0	--------

[1] Pulmonary tuberculosis only.

City reports for week ended February 12, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—con.											
Nebraska:											
Lincoln	3	6	0	0	0	1	0	1	0	1	18
Omaha	5	13	10	2	0	3	0	1	0	3	40
Kansas:											
Topeka	2	1	0	17	0	1	0	0	0	27	17
Wichita	4	13	1	0	0	1	0	0	0	6	32
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	28	0	0	0	1	0	0	0	3	23
Maryland:											
Baltimore	46	51	0	0	0	16	2	4	0	95	235
Cumberland	1	1	0	0	0	0	0	0	1	0	12
Frederick	1	2	0	0	0	0	0	0	0	1	7
Dist. of Columbia:											
Washington	26	18	2	0	0	12	1	1	0	16	149
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	0	9
Norfolk	2	7	0	0	0	4	0	0	0	28	--------
Richmond	4	1	0	0	0	1	1	0	0	13	48
Roanoke	1	1	0	0	0	1	0	0	0	0	22
West Virginia:											
Charleston	1	5	1	0	0	0	0	4	0	4	17
Wheeling	1	5	0	0	0	1	1	0	0	7	12
North Carolina:											
Raleigh	1	4	0	0	0	2	0	0	0	36	16
Wilmington	0	0	0	0	0	0	0	0	0	17	12
Winston-Salem	1	2	4	1	0	2	0	0	0	40	19
South Carolina:											
Charleston	0	4	0	1	0	1	0	0	0	0	20
Columbia	0	0	1	3	--------	--------	0	0	--------	12	--------
Greenville	0	2	0	2	0	1	0	0	0	1	14
Georgia:											
Atlanta	4	7	2	28	0	5	0	0	0	4	--------
Brunswick	0	1	0	0	0	1	0	0	0	0	4
Savannah	0	1	0	0	0	2	0	0	0	0	35
Florida:											
Miami	1	0	--------	0	0	1	1	0	0	2	29
St. Petersburg	1	--------	0	--------	0	0	0	--------	0	--------	19
Tampa	0	2	0	0	0	0	1	1	0	0	20
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	1	0	0	0	2	0	0	0	0	17
Louisville	5	8	1	2	0	11	1	1	1	90	89
Tennessee:											
Memphis	4	28	2	8	0	2	1	0	0	19	57
Nashville	4	4	1	0	0	4	0	1	0	0	43
Alabama:											
Birmingham	2	3	5	5	0	0	0	0	0	6	50
Mobile	0	0	1	1	0	1	0	0	0	0	15
Montgomery	0	0	1	0	0	0	0	0	0	3	6
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	--------	--------	0	0	--------	5	12
Little Rock	1	0	0	0	0	1	0	0	0	0	--------
Louisiana:											
New Orleans	6	7	2	0	0	12	2	0	0	3	156
Shreveport	1	1	2	0	0	0	0	2	0	1	26
Oklahoma:											
Oklahoma City	2	0	3	8	0	0	0	0	0	0	26
Texas:											
Dallas	2	7	2	9	0	3	1	1	0	4	40
Galveston	0	1	1	0	0	0	0	0	0	0	8
Houston	1	2	2	7	0	2	0	0	0	0	61
San Antonio	1	0	0	0	0	7	1	0	0	0	58

City reports for week ended February 12, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
MOUNTAIN											
Montana:											
Billings	0	1	0	0	0	0	0	0	0	0	6
Great Falls	2	5	2	0	0	0	0	0	0	0	6
Helena	0	0	0	0	0	0	0	0	0	0	2
Missoula	1	19	1	0	0	0	0	0	0	0	6
Idaho											
Boise	1	4	1	1	0	0	0	0	0	0	10
Colorado:											
Denver	13	97	2	0	0	8	0	0	0	1	74
Pueblo	1	2	0	1	0	2	0	0	0	0	12
New Mexico:											
Albuquerque	1	5	0	0	0	4	0	0	0	2	13
Arizona:											
Phoenix	0	3	0	0	0	9	0	0	0	0	23
Utah:											
Salt Lake City	3	11	2	0	0	1	0	0	0	1	38
Nevada:											
Reno	1	0	0	0	0	0	0	0	0	0	1
PACIFIC											
Washington:											
Seattle	10	12	3	0			0	2		9	
Spokane	4	37	5	9			0	0		5	
Tacoma	3	8	3	15	0	0	0	0	0	0	20
Oregon:											
Portland	6	6	9	0	0	2	0	2	0	1	75
California:											
Los Angeles	28	63	7	0	0	24	2	2	0	12	249
Sacramento	2	1	1	1	0	2	1	1	0	0	15
San Francisco	15	28	4	4	0	11	1	2	0	14	173

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	1	0	0	0	0	0	0	0
Fall River	0	0	1	1	0	0	0	0	0
Connecticut:									
Bridgeport	0	0	1	1	0	0	0	0	0
Hartford	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	3	2	13	1	0	0	1	0	0
New Jersey:									
Newark	1	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Columbus	0	0	0	1	0	0	0	0	0
Toledo	2	2	0	0	0	0	0	0	0
Illinois:									
Chicago	1	0	1	0	0	0	0	0	0
Michigan:									
Detroit	2	2	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee	2	3	0	0	0	0	0	0	0

City reports for week ended February 12, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
Missouri:									
St. Louis	1	0	0	0	0	0	0	0	0
Nebraska:									
Omaha	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	1	0	0	0	0	1
District of Columbia:									
Washington	0	0	3	2	1	1	0	0	0
Virginia:									
Richmond	0	0	0	1	0	0	0	0	0
Georgia:									
Atlanta [1]	0	0	0	0	1	0	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	2	2	0	0	2	0	0	0	0
Alabama:									
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	2	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
Houston	0	0	0	0	0	1	0	0	0
PACIFIC									
Washington:									
Seattle	1	--------	0	--------	0	--------	0	0	--------
Spokane	2	--------	0	--------	0	--------	0	0	--------
Tacoma	1	0	0	0	0	0	0	0	0
Oregon:									
Portland	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	2	0	0	0	0	0	0	1	0
Sacramento	1	0	0	0	0	0	0	0	0
San Francisco	1	0	0	0	0	0	0	0	0

[1] Typhus fever: 1 case at Atlanta, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended February 12, 1927, compared with those for a like period ended February 13, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, January 9 to February 12, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 16, 1926	Jan. 15, 1927	Jan 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927
101 cities	146	187	142	176	142	178	134	[2] 195	[3] 136	[4] 178
New England	144	174	132	151	118	163	97	146	123	[5] 168
Middle Atlantic	151	177	138	192	130	194	129	229	141	188
East North Central	135	189	131	170	138	175	119	202	[3] 132	179
West North Central	258	159	210	147	250	127	222	123	171	155
South Atlantic	140	216	151	161	115	199	132	143	134	[6] 225
East South Central	67	250	72	153	41	102	41	127	47	[7] 74
West South Central	120	247	155	172	142	206	137	[2] 241	116	151
Mountain	128	117	155	117	264	198	128	189	173	153
Pacific	80	194	139	233	166	168	188	217	139	168

MEASLES CASE RATES

101 cities	974	334	1,336	445	1,385	417	1,481	[2] 560	[3] 1,719	[4] 648
New England	2,861	195	2,566	548	2,745	323	2,403	378	2,342	[5] 364
Middle Atlantic	846	38	1,090	49	1,187	46	1,350	41	1,514	45
East North Central	1,303	380	2,071	516	2,091	500	2,155	647	[3] 2,637	738
West North Central	129	193	153	278	280	298	395	455	551	685
South Atlantic	1,345	203	2,457	303	2,261	257	2,557	538	3,086	[6] 364
East South Central	238	97	284	204	393	188	708	270	729	[7] 507
West South Central	17	306	13	453	26	382	34	[2] 577	13	457
Mountain	91	3,443	118	5,088	100	4,459	91	7,237	109	7,866
Pacific	51	1,482	64	1,346	72	1,508	104	1,542	166	2,225

SCARLET FEVER CASE RATES

101 cities	286	366	292	383	287	386	298	[2] 402	[3] 298	[4] 389
New England	380	478	300	536	377	539	401	508	361	[5] 544
Middle Atlantic	238	339	237	369	235	379	209	434	197	424
East North Central	322	344	325	330	300	342	338	319	[3] 359	327
West North Central	557	558	678	518	666	488	754	522	782	500
South Atlantic	184	259	184	281	153	254	162	246	169	[6] 258
East South Central	140	214	202	336	109	321	119	245	114	[7] 99
West South Central	90	143	69	197	69	113	137	[2] 125	107	75
Mountain	319	1,115	374	1,349	255	1,609	155	1,519	219	1,250
Pacific	268	377	254	319	332	327	324	437	308	390

SMALLPOX CASE RATES

101 cities	47	22	35	20	40	26	47	[2] 25	[3] 53	[4] 25
New England	0	0	0	0	0	0	0	0	0	[5] 0
Middle Atlantic	2	1	0	1	1	0	0	0	1	0
East North Central	37	21	33	17	43	17	16	22	[3] 23	15
West North Central	52	69	34	60	54	79	52	54	32	71
South Atlantic	67	51	56	34	58	60	101	43	80	[6] 60
East South Central	57	87	47	25	21	87	41	102	52	[7] 49
West South Central	146	25	99	63	125	42	155	[2] 82	112	67
Mountain	18	0	27	0	18	9	73	9	73	18
Pacific	284	37	193	63	204	71	321	63	458	76

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Fort Smith, Ark., not included.
[3] Madison, Wis., not included.
[4] Worcester, Mass., Greenville, S. C., and Memphis, Tenn., not included.
[5] Worcester, Mass., not included.
[6] Greenville, S. C., not included.
[7] Memphis, Tenn., not included.

Summary of weekly reports from cities, January 9 to February 12, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927
101 cities	11	9	9	7	8	7	7	[2] 7	[3] 6	[4] 7
New England	2	21	9	2	9	5	14	9	5	[5] 5
Middle Atlantic	16	8	10	5	9	4	3	9	6	5
East North Central	8	1	3	6	4	2	3	5	[3] 4	2
West North Central	4	6	4	4	2	8	6	4	4	6
South Atlantic	7	16	7	7	9	18	13	5	15	[6] 18
East South Central	16	15	5	10	10	36	21	5	10	[7] 12
West South Central	13	17	47	4	17	0	4	[2] 17	0	13
Mountain	9	9	0	27	18	18	36	0	0	0
Pacific	13	21	16	21	11	21	16	8	13	18

INFLUENZA DEATH RATES

	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927
95 cities	23	21	20	21	29	25	34	19	[3] 33	[4] 25
New England	14	14	7	5	17	9	12	5	19	[5] 3
Middle Atlantic	16	20	14	20	18	22	20	21	15	28
East North Central	11	16	8	25	12	21	12	9	[3] 11	22
West North Central	19	10	11	4	13	4	19	12	4	15
South Atlantic	23	24	40	20	36	50	68	28	64	[6] 24
East South Central	88	36	57	15	72	31	103	56	62	[7] 43
West South Central	75	43	88	43	141	73	168	65	282	39
Mountain	64	99	18	54	73	72	109	45	128	72
Pacific	46	14	39	31	78	14	67	7	35	21

PNEUMONIA DEATH RATES

	Jan. 16, 1926	Jan. 15, 1927	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927
95 cities	211	179	190	183	201	159	206	168	[3] 212	[4] 147
New England	208	190	210	207	144	158	200	188	156	[5] 155
Middle Atlantic	236	205	228	197	218	174	213	197	212	174
East North Central	153	152	139	138	166	132	145	122	[3] 161	128
West North Central	127	125	82	116	110	127	125	135	78	96
South Atlantic	278	193	289	283	286	193	346	226	408	[6] 160
East South Central	284	199	228	245	207	204	248	199	222	[7] 111
West South Central	331	181	291	202	415	202	362	151	516	116
Mountain	328	198	273	216	164	171	228	144	328	144
Pacific	166	169	184	134	173	107	184	121	110	114

[2] Fort Smith, Ark., not included.
[3] Madison, Wis., not included.
[4] Worcester, Mass., Greenville, S. C., and Memphis, Tenn., not included.
[5] Worcester, Mass., not included.
[6] Greenville, S. C., not included.
[7] Memphis, Tenn., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30, 438, 500	30, 960, 600	29, 778, 400	30, 289, 800
New England	12	12	2, 211, 000	2, 245, 900	2, 211, 000	2, 245, 900
Middle Atlantic	10	10	10, 457, 000	10, 567, 000	10, 457, 000	10, 567, 000
East North Central	16	16	7, 644, 900	7, 804, 500	7, 644, 900	7, 804, 500
West North Central	12	10	2, 585, 500	2, 626, 600	2, 470, 600	2, 510, 000
South Atlantic	21	20	2, 799, 500	2, 878, 100	2, 757, 700	2, 835, 700
East South Central	7	7	1, 008, 300	1, 023, 500	1, 008, 300	1, 023, 500
West South Central	8	7	1, 213, 800	1, 243, 300	1, 181, 500	1, 210, 400
Mountain	9	9	572, 100	580, 000	572, 100	580, 000
Pacific	6	4	1, 946, 400	1, 991, 700	1, 475, 300	1, 512, 800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended February 5, 1927.—The following report for the week ended February 5, 1927, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	1	1	0	0	0	0
British India:						
Karachi	----	0	----	0	2	2
Bombay	----	0	----	0	41	11
Madras	----	0	----	[illegible]	20	2
Calcutta	----	0	----	29	77	66
Rangoon	----	6	----	1	3	2
Negapatam	----	0	----	0	1	1
Vizagapatam	----	0	----	0	1	0
Straits Settlements:						
Singapore	0	0	0	0	1	0
Dutch East Indies:						
Surabaya	2	2	0	0	0	0

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Siam: Bangkok	0	0	1	0	5	3
Japan: Kobe	0	0	0	0	1	0
Hongkong	0	0	0	0	3	0
China: Shanghai	0	0	0	0	1	1
U.S.S.R.: Vladivostok	0	0	0	0	5	----
Manchuria:						
Changchun	0	0	0	0	1	0
Mukden	0	0	0	0	3	0
Mauritius:						
Port Louis	1	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire.
British India.—Chittagong, Cochin, Tuticorin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang.
Dutch East Indies.—Batavia, Sabang, Samarinda, Macassar, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Padang, Palembang, Balikpapan, Tarakan.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Saigon and Cholon, Harphong, Turane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zambcanga.
China.—Amoy.
Macao.
Formosa.—Keelung.
Chosen.—Chemulpo, Fusan.
Manchuria.—Harbin, Antung, Yingkow, Changchun.
Kwantung.—Port Arthur, Dairen.
Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—St. Denis.

Reports had not been received in time for distribution from:

Madagascar.—Tamatave, Majunga. *Dutch East Indies.*—Samarinda.

Other epidemiological information received by the Singapore bureau:

Penang.—*Steamship Scheldestadt* arrived on February 5 from Calcutta infected with smallpox.

INFLUENZA IN FOREIGN COUNTRIES

The health section of the secretariat of the League of Nations has published the following information relative to the prevalence of influenza in foreign countries. The data were obtained from the health administrations of the several countries. (See Public Health Reports, February 25, 1927, p. 584.)

Australia.—(February 4.) The influenza situation is normal.

Bulgaria.—(February 10.) There was a rapid increase of influenza during the week ended Februay 5, especially in the departments of Bourgas, Plovdiv, Stara-Zagora, and Plevna. The returns of cases and deaths for the week were as follows:

Departments	Cases	Deaths	Departments	Cases	Deaths
Bourgas	17, 476	115	Roustjuk	5, 501	9
Plovdiv	16, 544	95	Petritch	5, 073	10
Stara-Zagora	9, 124	30	Vidin	3, 023	8
Plevna	8, 979	53	Varna	2, 843	6
Sofia	10, 713	11	Mastanli	472	0
Kustendil	8, 602	15	Pachmakly	333	0
Vratza	8, 381	6			
Choumen	6, 400	22	Total	109, 343	405
Haskovo	5, 879	30			

China.—(February 9.) Influenza cases are occurring sporadically at Peking. There is a moderate prevalence of influenza at Shanghai but the general death rate remains low.

Czechoslovakia.—(February 7.) Reports for the week ended January 29 show a considerable increase of the influenza incidence; 55,046 cases and 147 deaths were reported during that week as compared with 30,829 cases and 39 deaths during the previous week; 25,233 of these cases were among children under 14 years of age.

Denmark.—(February 10.) Thirty-eight thousand six hundred and seventy-three influenza cases were reported during the week ended January 29 as compared with 37,241 cases during the previous week. The incidence is decreasing at Copenhagen, where 6,725 cases and 9 deaths were reported during the week ended January 22, 6,090 cases and 13 deaths during the week ended January 29, and 4,356 cases during the week ended February 5,

England and Wales.—(February 8.) Influenza is abating in London and the southeastern districts. The disease is still widely prevalent in the Midlands in mild form and is spreading slowly northward and westward. The age distribution is of the normal type. Provisional returns for the week ended February 5 are as follows: In London, 215 deaths; in 105 large towns (including London), 818 deaths. The pneumonia notifications numbered 423 in London and 3,132 in the whole country.

Statistics for the week ended January 29 showed the highest incidence of influenza cases in the following towns: London, where there were 252 deaths from influenza and 240 in the suburbs, the general death rate was 23.2 per 1,000;

Bristol, where there were 31 deaths from influenza and the general death rate was 26.3; Brighton, where there were 20 deaths from influenza, general death rate, 39; Cardiff, where there were 19 deaths from influenza, the general death rate being 23.9. The death rate did not exceed the normal in Lancashire, Yorkshire, Durham, and Northumberland.

France.—The incidence of influenza continues to decrease at Paris; 30 deaths were attributed to this cause during the period from January 21 to 31 as compared with 41 during the previous 10 days.

It appears that the epidemic is decreasing elsewhere in France, except in the western part of the country, where there has been a new extension of the infection.

Germany.—Statistics of causes of death in 44 German towns showed an increase of deaths attributed to influenza from 158 during the first week to 245 during the second week of January. Data for Cologne and Munich are not included in these totals. The general death rate of Berlin decreased at the same time from 15.6 to 15.1 per 1,000 and that of Breslau from 20.2 to 18.9. In none of the towns was there any rapid increase of the general death rate or of the deaths attributed to influenza or to diseases of the respiratory system.

The statistics of the General Sickness Insurance Fund of Berlin showed a further decrease of influenza cases during the last week of January. Twenty-one deaths from influenza occurred among the members from January 25 to February 1, inclusive.

Three thousand four hundred and fifty influenza cases were reported at Nuremberg during the week ended January 22, as compared with 745 cases during the previous week.

Hungary.—(February 8.) Three hundred and eighty-two influenza cases with complications and 23 deaths from influenza occurred at Budapest during the week ended February 5. The general mortality shows only a moderate increase. Influenza is now decreasing in the parts of the country which were first affected. There were 701 influenza cases reported in the army during the said week, as compared with 1,192 during the previous week.

India.—Eleven deaths were attributed to influenza at Calcutta, one at Bombay, and three at Rangoon during the week ended February 5. Reports for the Provinces and Presidencies showed no evidence of prevalence of influenza.

Japan.—(February 9.). There were 108 deaths from influenza during the first 10 days of January in the principal towns, in addition to the 142 deaths reported for this period. Three hundred and seventy-six deaths from influenza were reported in the same towns during the 10 days ended January 20.

Lithuania.—(February 7.) One thousand one hundred and forty-seven influenza cases and 10 deaths were reported from January 21 to 31, as compared with 386 cases and 2 deaths from January 1 to 20. The deaths were those of persons of advanced age and caused by pulmonary complications.

Netherlands.—(February 5.) The influenza epidemic, on the whole, is decreasing in the western part of the country, where it seems that it began. There is thus a marked decrease of the incidence at The Hague, and the local health officer of Leyden states that the epidemic tends to disappear there. The complications of the respiratory system seem, however, to have become somewhat more frequent. The epidemic spread toward the east during the last 10 days. A sickness insurance company states that the daily number of new cases of sickness reported among its members increased from 164 on December 1 and 215 on the 27th to 658 on January 10, an increase which is largely due to the prevalence of influenza.

The central bureau of statistics states that 180 deaths were attributed to influenza in December, as compared with 51 during the previous month and 79

during the corresponding month in 1925. Of these 180 deaths, 98 were among persons over 60 years of age and 35 among children under 15 years of age.

Poland.—(February 4.) The incidence of influenza has not been higher in January than in December at Vilna; no fatal cases have been reported. The incidence of influenza has not increased at Lodz since the first week of January. At the city of Posen there has been no increase of the general mortality nor of diseases of the respiratory system from the first to the second week of January. The general mortality was decreasing at Cracow during the second week of January. Seven deaths were attributed to influenza during the first week of January at Lwow. The incidence of influenza is decreasing markedly at Warsaw. There were 9 deaths from influenza during the week ended January 29, as compared with 18 during the previous week. The number of deaths from all causes decreased at the same time from 336 to 294.

Portugal.—(February 1.) The general death rate and the deaths from respiratory diseases have increased at Lisbon since the end of December. During the week ended December 25, there were 226 deaths from all causes; during the week ended January 22, 350. Deaths attributed to bronchitis and bronchopneumonia increased at the same time from 12 to 70.

Scotland.—(February 7.) The returns for the week ended February 5 received from Aberdeen and Greenock showed some evidence of the effects of influenza. The medical officers of health for Dundee, Motherwell, and Dunfermline reported that the mild epidemics which have existed in these places are now decreasing.

Twenty-four deaths were attributed to influenza in 16 Scottish towns during the week ended February 5. The general death rate was 16.6, which is quite normal for the season. The mortality statistics as well as reports from the medical officers of health thus indicate that there is no serious epidemic of influenza in Scotland.

Spain.—(February 8.) The influenza epidemic continues to decrease. Cases are now occurring only in eight Provinces. The cases are not numerous and are of a mild character.

Switzerland.—The total number of influenza cases reported in Switzerland decreased from 19,122 during the week ended January 22 to 10,003 during the week ended January 29 and to 5,058 during the week ended February 5. The disease was decreasing in all cantons and tended to disappear in the districts first affected. It is seen that the districts which have been affected later have suffered less than those affected early in the epidemic.

Yugoslavia.—(February 7.) One thousand six hundred and fifty-two influenza cases and 9 deaths were reported during the week ended January 21. The highest number of cases is reported in the district of Zagreb. Reports for various districts are still missing. The prevailing type is generally mild and mild catarrhal. The duration of the disease is from four to six days.

LATER INFORMATION

A cablegram dated February 24, 1927, from the health section of the secretariat of the League of Nations gives the following information:

Influenza is increasing in England in the midlands, Lancashire, and Yorkshire, also in Sweden, Czechoslovakia, Yugoslavia, Rumania, Bulgaria, and in Moscow. The disease is mostly mild. It is decreasing elsewhere in Europe. Deaths in 105 great towns of England, seventh week, 990; deaths in Bulgaria, sixth week, 630; deaths in Japanese towns, third decade of January, 639.

BRAZIL

Deaths from communicable diseases—Sao Paulo—October 25–December 5, 1926.—Deaths from communicable diseases were reported from Sao Paulo, Brazil, for the five weeks from October 25 to December 5, 1926, as follows:

DEATHS

Cerebrospinal meningitis	2	Poliomyelitis	1
Chicken pox	1	Puerperal septicemia	14
Diphtheria	4	Scarlet fever	1
Dysentery	31	Septicemia	17
Erysipelas	3	Smallpox	9
Grippe	12	Syphilis	33
Leprosy	12	Tetanus	3
Lethargic encephalitis	1	Tuberculosis	126
Malaria	3	Typhoid fever	23
Measles	27	Whooping cough	22
Plague	1		

CANADA

Communicable diseases—Week ended February 12, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended February 12, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Albert	Total
Cerebrospinal fever				1	1			2
Influenza	9				10			19
Smallpox				27	3	5	15	50
Typhoid fever		2	6	27	2		1	38

LATVIA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Chicken pox	2	Puerperal fever	1
Diphtheria	63	Scarlet fever	505
Erysipelas	20	Tetanus	4
Leprosy	3	Trachoma	24
Measles	236	Typhoid fever	49
Mumps	28	Whooping cough	160
Paratyphoid fever	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended March 4, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Jan. 2-8			Present.
Chosen	Oct. 1-31	21	16	
French Settlements in India	Oct. 31-Dec. 4	2	2	
India	Nov. 28-Dec. 11	4,868	2,781	
Bombay	Jan. 9-15	1	1	
Calcutta	Jan. 2-8	79	54	
Rangoon	do	1	1	
Russia	Sept. 1-30	7		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Angola:				
Benguela district	Nov. 16-Dec. 31	9	6	
Cuanza Norte district	Dec. 1-30	18	10	
Mossamedes district	Dec. 16-31	10		
Brazil:				
Sao Paulo	Nov. 1-14	1	1	
Celebes:				
Macassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Jan. 2-8	1		
Egypt:				
Marsa Matra	Jan. 27	1		
India	Nov. 28-Dec. 11			Cases, 2,395; deaths, 1,573.
Madras	Dec. 26-Jan. 1	78	58	
Rangoon	Jan. 2-8	3	2	
Java:				
Batavia	do	11	11	
Nigeria	Oct. 1-31	373	334	
Russia	Sept. 1-30	45		
Tunisia	Dec 1-31	43		
Union of South Africa:				
Cape Province—				
Craddock district	Jan. 2-8	2	1	
Hanover district	do	1	1	
Orange Free State—				
Hoopstad district	do	2		

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Nov. 21-Dec. 20	221		
Angola:				
Cuanza Norte	Nov. 1-15			Present.
Brazil:				
Sao Paulo	Nov. 14-Dec. 5	22	9	
Bulgaria	Nov. 1-30	1		
Canada	Feb. 6-12			Cases, 50.
Alberta	do	15		
Edmonton	Jan. 1-31	5		
Manitoba	Feb. 6-12	3		
Ontario	do	27		
Kingston	Jan. 29-Feb. 5	1		
Toronto	Jan. 29-Feb. 12	12		
China:				
Canton	Nov. 1-30	1		
Chungking	Jan. 2-8			Present.
Tientsin	Jan. 16-22	2		
Chosen	Oct. 1-31	5	2	
France	Nov. 1-30	49		
French Settlements in India	Oct. 31-Dec. 4	25	25	
Gold Coast	Oct. 1-31	2	1	
Great Britain:				
England and Wales	Jan. 23-Feb. 5	1,079		
Newcastle-on-Tyne	Jan. 30-Feb. 5	1		
Wakefield	do	2		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended March 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India	Nov. 28–Dec. 11			Cases, 5,230; deaths, 1,359
Bombay	Jan. 8–15	21	15	
Calcutta	Jan. 2–8	114	89	
Karachi	Jan. 8–15	21	21	
Madras	Jan. 16–22	5	1	
Rangoon	Jan. 2–8	1		
Italy	Oct. 24–Nov. 13	4		
Jamaica	Jan. 30–Feb. 5	6		
Japan	Oct. 24–Dec. 4	6		
Lithuania	Nov. 1–30	2		
Mexico	Sept. 1–30		82	
Saltillo	Feb. 6–12		1	
San Luis Potosi	do		4	
Nigeria	Oct. 1–31	12	1	
Peru:				
Arequipa	Dec. 1–31		1	
Poland	Oct. 31–Dec. 18	26	1	
Russia	Sept. 1–30	255		
Spain	July 1–Sept. 30		9	
Tunisia	Nov. 21–Dec. 31	2		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Nov. 21–Dec. 20	37	2	
Bulgaria	Nov. 1–30	10	2	
Chosen	Oct. 1–30	2	2	
France	Nov. 1–30	1		
Greece:				
Drama	December, 1926	2		
Kavalla	do	2		
Ravikan	do	1		
Lithuania	Nov. 1–30	7	1	
Mexico	Sept. 1–30			Deaths, 33.
Aguascalientes	Jan. 30–Feb. 5	1	1	
Guadalajara	Jan. 25–31			
Mexico City	Jan. 16–29	13		Including municipalities in Federal District.
Parral	Jan. 30–Feb. 5	1		
Palestine:				
Haifa	Jan. 11–31	2		
Jaffa	do	2		
Peru:				
Arequipa	Dec. 1–31		2	
Poland	Dec. 5–18	79	9	
Rumania	Nov. 1–30	141	5	
Russia	Sept. 1–31	696		
Spain	July 1–Sept. 30		4	
Tunisia	Nov. 21–Dec. 31	27		
Union of South Africa:				
Cape Province	Jan. 2–8			Outbreaks.

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Senegal:				
Rufisque	Dec. 29	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 25, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Nov. 14-20			Present.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-30	231	143	
French Settlements in India	Aug. 29-Oct. 30	128	94	
India	Oct. 10-Nov. 27			Cases, 10,739; deaths, 6,404.
Calcutta	Oct. 31-Jan. 1	385	313	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands.				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-31	1		
Siam	Oct. 31-Nov. 6			Case, 1.
Do	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Bangkok	Oct. 31-Jan. 1	16	5	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Dec. 18	10	5	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela	Oct. 16-31	8	4	
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
British East Africa.				
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el-Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 25, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India	Oct. 10-Nov. 27			Cases, 10,593; deaths, 6,237.
Bombay	Nov 21-27	1	1	
Madras	Oct. 31-Dec 25	503	266	
Rangoon	Nov. 14-Dec. 25	11	9	
Indo-China	July 1-31			Cases, 24; deaths, 10
Province—				
Cambodia	July, 1926	6	6	July, 1925. Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case
Kwang-Chow-Wan	do	10		July, 1925 Cases, 22, deaths, 15.
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Nov. 30	14	14	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Nov. 30	53	36	
Tamatave	do	14	1	
Tananarive	do			Cases, 309; deaths, 285.
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct 16-Nov. 30	39	25	
Mauritius:				
Plaines Wilhems	Oct. 1-31	2	2	
Port Louis	do	7	7	
Nigeria	Aug. 1-Sept. 30	492	441	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Departments—				
Ancash	Dec. 1-31	6	6	
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Libertad	Dec. 1-31	2		
Lima	Nov. 1-Dec. 31	42	14	
Canete Province	do	16	9	
Chancay Province	do	14	1	
Lima Province	do	12	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Aug. 31	19		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26, deaths, 21.
Syria:				
Beirut	Nov. 11-Dec 20	4		
Tunisia	Jan. 12-26			Cases, 34.
Bousse	do	8		
Djeneniana	do	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar district	Nov. 21-27	1		Native.
Hanover district	Nov. 14-Jan. 1	3	2	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926 Reported Dec. 17.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 25, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20			Cases, 477.
Algiers	Dec 11-31	4		
Do	Jan. 1-10	1		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Sao Paulo	Aug. 23-Oct. 24	12	9	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Feb. 5			Cases, 221.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Feb. 5	42		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Feb. 5	13		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Feb. 12	6		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Feb. 5	143		
Kingston	Jan. 1-7	1		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-29	35	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Feb. 5	23		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 26-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Nanking	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Swatow	Nov. 21-27			Do.
Nanking	Dec. 12-25			Do.
Chosen	Aug. 1-Sept. 30	42	14	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Oct. 31	165		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-20	7	1	
French Settlements in India	Aug. 29-Nov. 30	83	83	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-31	41	5	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Do	Jan. 2-22			Cases, 1,645.
Bradford	Jan. 9-22	2		
Newcastle-on-Tyne	Dec. 5-11	2		
Do	Jan. 2-22	10		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-22	243		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 25, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India	Oct. 10-Nov. 27			Cases, 7,882; deaths, 1,859.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-7	8	5	
Calcutta	Oct 31-Jan. 1	449	311	
Karachi	Dec. 19-25	1	1	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-15	20	2	
Rangoon	Nov. 28-Jan 1	2	2	
Indo-China	July 1-31			Cases, 29, deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39, deaths, 7.
Cambodia	do	11	4	July, 1925 Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925. Cases, 12, deaths, 7.
Laos	do	3	1	July, 1925 Cases, none.
Tonkin	do	3	1	July, 1925. Cases, 31, deaths, 3.
Iraq:				
Baghdad	Oct 31-Dec. 4	7	4	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Oct. 23	12		
Genoa	Dec. 20-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-29	39		
Japan:				
Kobe	Nov. 14-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 27	10	1	
Luxemburg	Nov. 1-30	1		
Mexico	July 1-Aug. 31		331	
Chihuahua	Dec. 31			Several cases, mild.
Do	Jan. 31-Feb 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal district.
Do	Dec. 26-Jan. 8	1		Do.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-22		6	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-22		5	
Nigeria	Aug. 1-Sept. 30	61	3	
Peru:				
Arequipa	Dec. 1-31			Present.
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-30			Cases, 30.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-15	5		
Portuguese West Africa:				
Angola	Oct. 1-15			Present in Congo district.
Rumania	Jan. 1-Sept 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Aug. 31	629		
Senegal:				
Dakar	Jan. 9-15	1		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 268.
Bangkok	Oct. 31-Jan. 1	28	10	
Sierra Leone:				
Nanowa	Dec. 1-15.	1		Pendembu district.
Straits Settlements:				
Singapore	Oct. 31-Dec. 18	6	2	
Tunisia	Oct. 1-Nov. 20	7		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality; Total from date of outbreak, cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to February 25, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Nov. 20	22		
Bulgaria	July 1-Oct. 31	23	3	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan 2-22	3	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Sept. 30	15		
Seoul	Nov. 1-30	1		
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Oct. 31	17	2	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-15	1		
Durango	Jan. 1-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in eral District.
Do	Jan. 2-15	16		Do.
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Jan. 10	4		
Jaffa	Nov. 23-Dec. 20	6		
Jerusalem	Sept. 1-Oct. 30	19		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	10		
Safad	Dec. 28-Jan. 3	1		
Peru:				
Arequipa	Dec. 1-31			Present.
Poland	Oct. 11-Nov. 13			Cases, 82; deaths, 8.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Oct. 31	114	6	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	2,364		
Tunisia	Oct. 1-20	3		
Turkey:				
Constantinople	Dec. 12-25	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27	1	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

X

TREASURY DEPARTMENT

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BY THE UNITED STATES PUBLIC HEALTH SERVICE

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SPECIAL ARTICLES

UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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STANDARD MILK ORDINANCE RESULTS IN 14 ALABAMA TOWNS[1]

By LESLIE C. FRANK, *Sanitary Engineer, United States Public Health Service;* S. W. WELCH, *State Health Officer;* and C. A. ABELE, *Director, Bureau of Inspection, Alabama State Board of Health.*

If one wishes to picture the status of milk sanitation of the combined milk supplies of a group of communities, one method is to give the percentages of the combined milk supplies which comply with each of the items of sanitation with which the milk supplies should be surrounded.

This has been done in the present paper with regard to 14 Alabama towns in which the Standard Milk Ordinance of the United States Public Health Service has been in force long enough to warrant the measurement of results, namely, Albany, Decatur, Eufaula, Florence, Gadsden, Huntsville, Jasper, Mobile, Montgomery, Selma, Sheffield, Tuscumbia, Troy, and Tuscaloosa.

POPULATION

The population of these 14 towns is given in the 1920 census as follows:

TABLE 1.—*Population*

Albany	7, 652	Montgomery	43, 464
Decatur	4, 752	Selma	15, 589
Eufaula	4, 939	Sheffield	6, 682
Florence	10, 529	Tuscumbia	3, 855
Gadsden	14, 737	Troy	5, 696
Huntsville	8, 818	Tuscaloosa	11, 996
Jasper	3, 246		
Mobile	60, 777	Total population	202, 732

The total population figure of 202,732 does not, however, represent the total population served by the milk supplies discussed in this paper. The actual total population served at present probably approaches 300,000 if we take into account the suburban populations and the natural growth since 1920.

[1] Read at the 20th annual meeting of the Southern Medical Association, Atlanta, Ga., Nov. 15-18, 1926.

MILK LEGISLATION

On January 1, 1923, no two of the milk ordinances of these 14 towns were alike, and half of these towns had no milk ordinances of any kind. The Standard Milk Ordinance of the United States Public Health Service was enacted on the dates given below:

TABLE 2.—*Date upon which Standard Milk Ordinance passed*

Albany	June 5, 1925.
Decatur	Jan. 10, 1925.
Eufaula	Nov., 1924.
Florence	Sept. 4, 1923.
Gadsden	June 18, 1923.
Huntsville	Oct. 26, 1923.
Jasper	July 6, 1925.
Mobile	Aug. 21, 1923.
Montgomery	Dec. 18, 1923.
Selma	Mar. 24, 1924.
Sheffield	Apr. 5, 1925.
Tuscumbia	May 12, 1925.
Troy	Aug. 18, 1925.
Tuscaloosa	June 12, 1923.

THE STANDARD MILK ORDINANCE

The Standard Milk Ordinance of the United States Public Health Service has been described in Reprint No. 971 from the PUBLIC HEALTH REPORTS for November 7, 1924, and in the PUBLIC HEALTH REPORTS for July 30, 1926. On May 25, 1926, the Standard Milk Ordinance, slightly modified, was adopted as standard for the United States by the Conference of State and Territorial Health Officers at Washington, D. C. The ordinance has now been enacted by over 100 American communities.

The ordinance has been so thoroughly described in the publications mentioned above that no further description will be given in this paper other than to state that the ordinance grades both raw and Pasteurized milk supplies on the basis of compliance or noncompliance with certain definite items of sanitation listed in the ordinance, and requires that bottle caps must show the grade thus awarded. Milk supplies which comply with all of the items of sanitation listed are given a grade "A" rating. Violations are punished by lower grade ratings, the grade given depending upon the nature of the violations. Health officers are advised to recommend that grade "A" Pasteurized milk is the safest grade of milk.

IMPROVEMENT IN RETAIL RAW MILK

Figure 1 is a graphic presentation of the change in the percentages of the total volume of retail raw milk in these 14 towns which comply with the several items of sanitation and quality prescribed for grade

"A" raw milk. The preenforcement percentages have been compiled from data collected in each community just prior to or immedi-

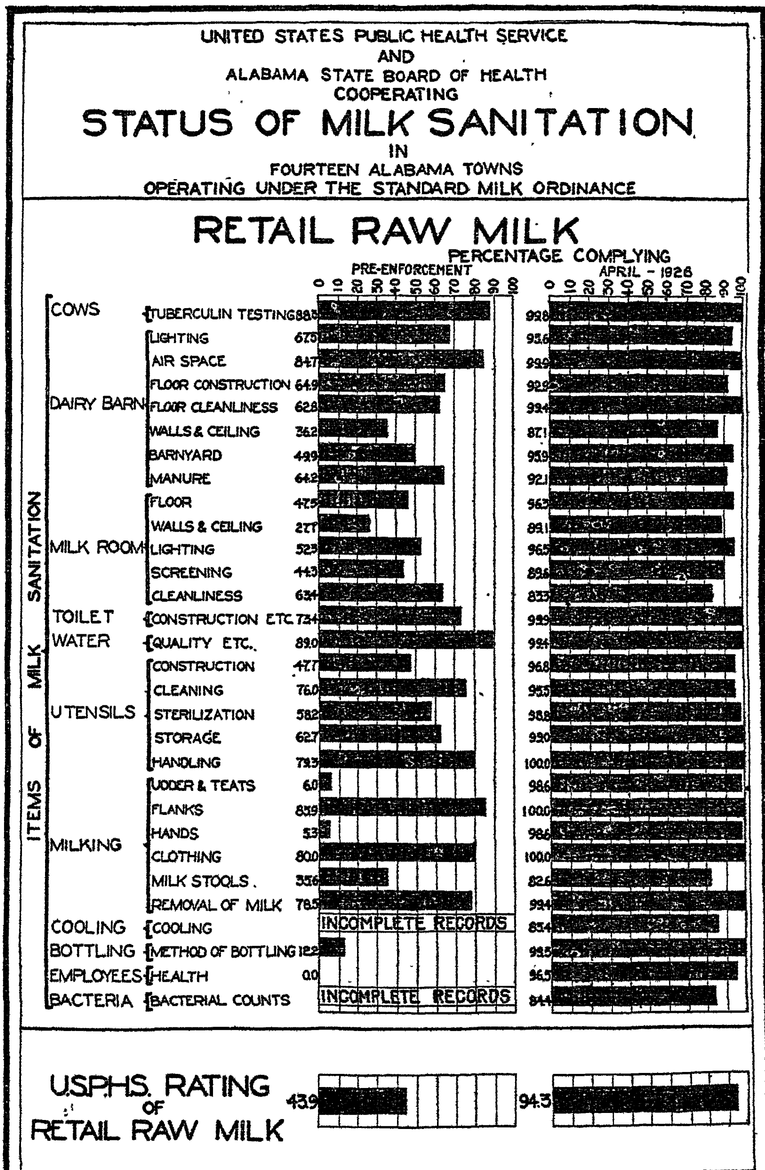

Fig. 1

ately following the passage of the Standard Ordinance. The April, 1926, percentages are compiled from data collected in an inspection survey of Alabama community milk supplies made by Mr. P. E.

LeFevre, Associate Milk Specialist, Office of Milk Investigations, United States Public Health Service. All data upon which this and the other figures and tables appearing in this paper are based have been checked by the Office of Milk Investigations.

It will be observed in general that the ideal of 100 per cent compliance was somewhat less than half satisfied before the ordinance went into effect and is over 90 per cent satisfied for April, 1926.

It is desirable to be able to give a single percentage figure to represent the retail raw milk sanitation status as a whole. This has been done in the form of the United States Public Health Service Retail Raw Milk Rating. This rating is similar to the Production Rating described in the Public Health Reports for July 30, 1926, except that it is made to apply to retail raw milk only. A 100 per cent retail raw milk rating would mean that all retail raw milk supplies had entirely satisfied all of the requirements for grade "A" raw milk as described in the Standard Ordinance.

The United States Public Health Service retail raw milk ratings for the 14 towns both prior to the enactment of the Standard Ordinanace and for April, 1926, are shown in Table 3. It will be noted that the improvement in all of the communities has been very marked, all except one of the communities now having retail raw milk ratings of over 80 per cent, and all except three of them having retail raw milk ratings of over 90 per cent.

The weighted retail raw milk rating for the 14 communities as a whole has improved from 43.9 per cent to 94.3 per cent, which means a percentage improvement of 115 per cent.

TABLE 3.—*United States Public Health Service rating for retail raw milk*

Community	Preenforcement rating	April, 1926, rating	Per cent improvement
Albany-Decatur	16.2	68.9	325
Eufaula	34.2	82.8	142
Florence	40.9	99.0	142
Gadsden	43.5	94.9	118
Huntsville	39.4	95.6	143
Jasper	20.2	92.4	357
Mobile	45.0	96.2	114
Montgomery	51.5	92.9	80
Selma	48.5	95.9	98
Sheffield-Tuscumbia	35.8	92.6	159
Troy	59.8	89.3	49
Tuscaloosa	44.0	99.6	126
Weighted average ratings	43.9	94.3	115

IMPROVEMENT IN RAW MILK DELIVERED TO PASTEURIZATION PLANTS

Figure 2 shows the improvement in raw milk delivered to Pasteurization plants.

The improvement in this fraction of the milk supplies of the 14 towns is almost as marked as in the case of the retail raw milk sup-

plies. Several of the items are still less than 90 per cent satisfied; but this is in most cases due to the fact that compliance with the

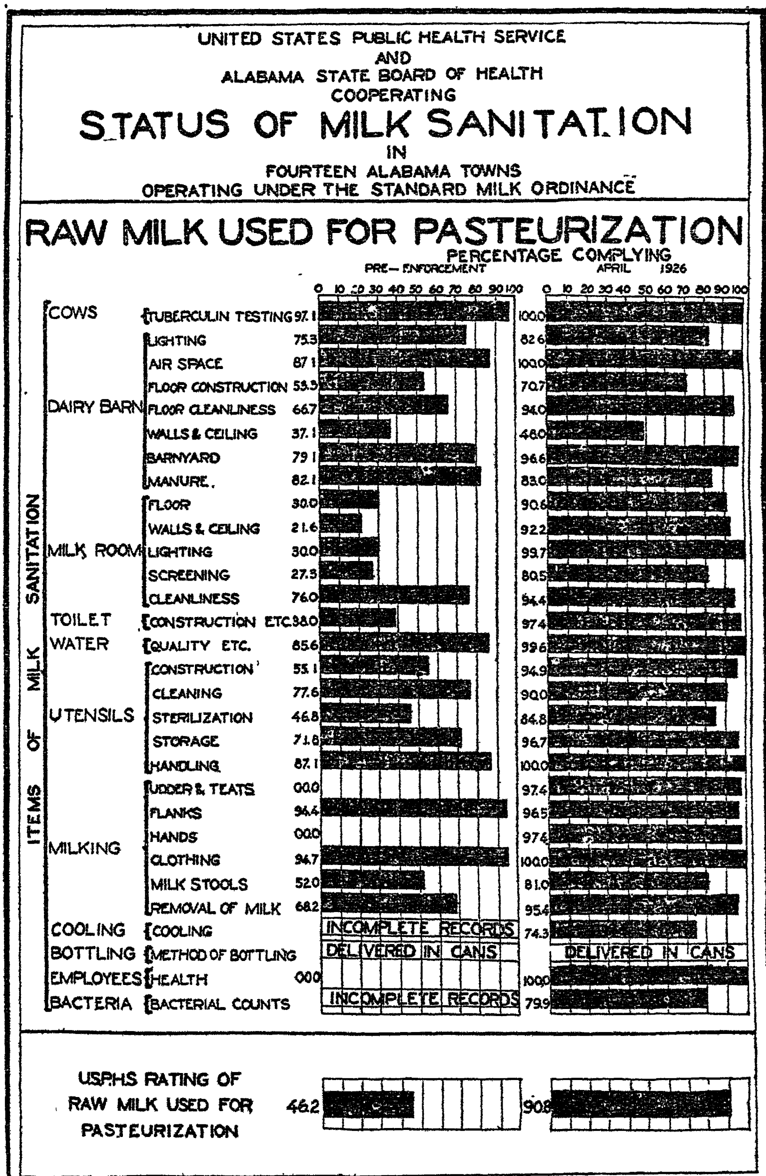

FIG. 2.

item in question is not required in the production of grade "A" Pasteurized milk. For example, barn floors are not required to be concreted though they are required to be clean. This explains why

only 82 per cent of the Pasteurization-plant milk complies with the barn floor construction requirement of grade "A" raw milk. Again,

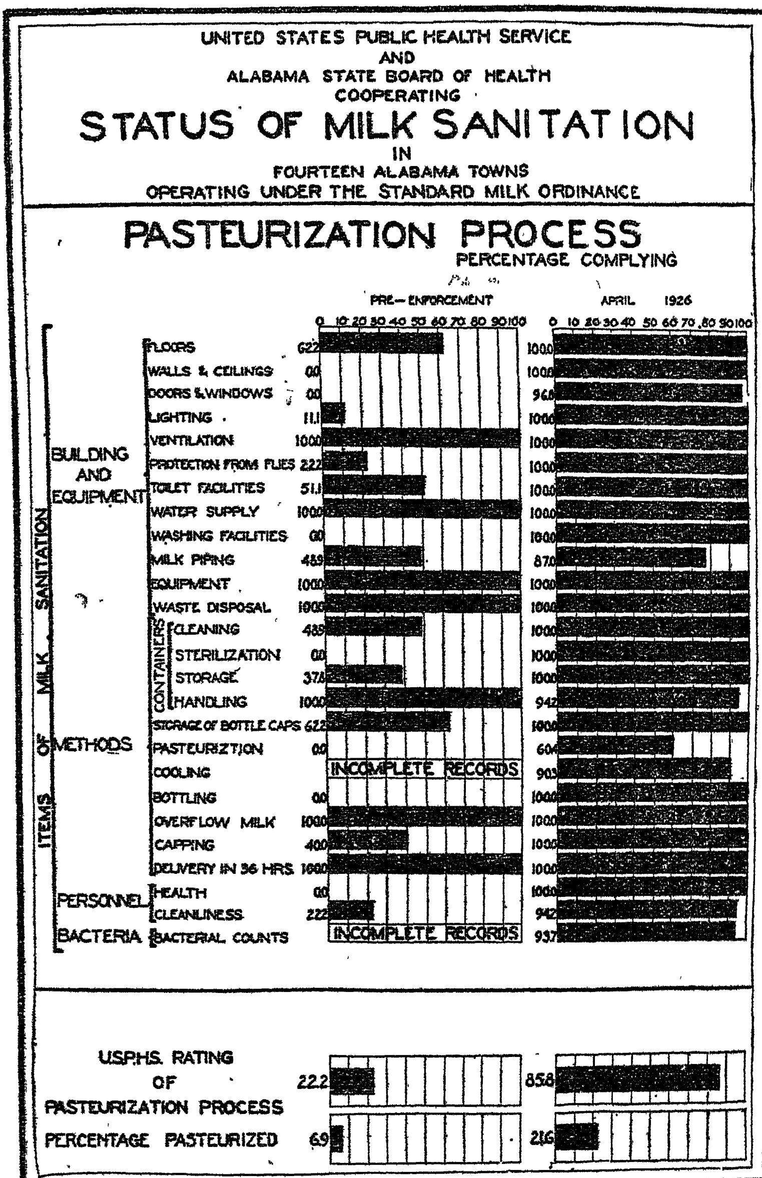

FIG. 3.

walls and ceilings of barns are not required to be whitewashed or painted, as in the case of retail raw milk supplies, although they must be clean. This explains the 48 per cent rating on this item.

Furthermore, hot-water sterilization is accepted in place of steam sterilization, which is responsible for a rating of only 84.8 per cent on this item. For the same reason the cooling rating and the bacterial-count rating for raw milk to plants are not quite as high as in the case of retail raw milk.

There is evidently further room for improvement in the case of screening of milk rooms and in the case of cleanliness of milk stools, these two items receiving only 80.5 per cent and 81 per cent ratings, respectively. However, even here the improvement is very marked, the preenforcement ratings for these items having been only 27.3 per cent and 52 per cent, respectively.

The United States Public Health Service ratings for raw milk to Pasteurization plants have been computed for these 14 towns and are included in Table 4.

The weighted average rating for the three towns having Pasteurized milk before the ordinance was passed was 46.2 as compared with the weighted average rating of 90.8 per cent for the nine towns having Pasteurized milk in the spring of 1926. This represents a 97 per cent improvement in the milk sanitation status of raw milk to plants.

IMPROVEMENT IN PASTEURIZATION PROCESS

Figure 3 shows the improvement in the Pasteurization process in those of the 14 cities selling Pasteurized milk. As stated before, the number of cities selling Pasteurized milk has increased from three to nine. The number of Pasteurization plants in these cities has increased from five to nine.

As will be seen from Figure 3, the compliance with the Pasteurization items of sanitation of the Standard Ordinance was very poor when the Standard Ordinance program was first introduced. The average impression given by the diagram of Figure 3 is that of considerably less than 50 per cent compliance before the ordinance was adopted, as compared with almost complete compliance for the spring of 1926.

If the information contained in Figure 3 be summarized in the form of the United States Public Health Service Pasteurization process rating we find that the weighted rating before the ordinance went into effect was 22.2 per cent, while the rating for the spring of 1926 is 85.8 per cent, representing a percentage improvement of 286 per cent.

The ratings for the Pasteurization process in each of the individual towns selling Pasteurized milk are given in Table 5.

TABLE. 4.—*United States Public Health Service rating for raw milk to Pasteurization plants*

Community	Preenforcement rating	April, 1926, rating	Percentage improvement
Albany-Decatur		90.1	
Eufaula			
Florence		98.5	
Gadsden			
Huntsville	58.6	94.5	61
Jasper		85.2	
Mobile			
Montgomery	50.3	85.3	70
Selma			
Sheffield-Tuscumbia		94.9	
Troy			
Tuscaloosa	26	94	262
Weighted average ratings	46.2	90.8	97

One of the principal weaknesses still existent is that several of the plants are still operating their old Pasteurization machinery, which is not completely equipped with flush-type valves. When the several plants still operating with such machinery are brought up to date, which the Alabama State Board of Health intends to bring about during the present year, the Pasteurization process rating for the 14 communities as a whole will be well over 90 per cent.

PERCENTAGE OF MILK PASTEURIZED

Table 6 shows the increase in the percentage of milk Pasteurized in each of the 14 towns.

It will be noted that only three of the communities were selling any considerable volume of Pasteurized milk before the ordinance went into effect, whereas in April, 1926, in nine communities a considerable percentage of the total milk supply, varying from 24.3 per cent for Montgomery to 88.5 per cent for Florence, was being Pasteurized.

THE UNITED STATES PUBLIC HEALTH SERVICE GENERAL MILK-SUPPLY RATING

The United States Public Health Service general milk-supply rating pictures the sanitation status of a milk supply as a whole, combining the effect of the retail raw milk rating, the rating of raw milk to Pasteurization plants, the Pasteurization process rating, and the percentage of milk Pasteurized. A 100 per cent general rating means that the total milk supply has been both properly produced and properly Pasteurized. The general milk sanitation ratings have been computed for each of the 14 Alabama Standard Ordinance communities, and are given in Table 7.

TABLE 5.—*United States Public Health Service rating for Pasteurization process*

Community	Pre-enforcement rating	April, 1926, rating	Percentage improvement
Albany-Decatur		99.2	
Eufaula			
Florence		99.3	
Gadsden			
Huntsville	20.0	99.0	395
Jasper		63.5	
Mobile			
Montgomery	22.2	66.8	201
Selma			
Sheffield-Tuscumbia		90.9	
Troy			
Tuscaloosa	24.0	100.0	317
Weighted average ratings	22.2	85.8	286

TABLE 6.—*United States Public Health Service percentage of milk Pasteurized*

Community	Preenforcement	April, 1926	Community	Preenforcement	April, 1926
Albany-Decatur	0	73.0	Montgomery	17.6	24.3
Eufaula	0	0	Selma	0	0
Florence	0	88.5	Sheffield-Tuscumbia	0	37.3
Gadsden	0	0	Troy	0	0
Huntsville	19.2	50.4	Tuscaloosa	19.8	53.3
Jasper	0	47.7			
Mobile	0	0	Group	6.9	21.6

It will be observed that the percentage increase in general ratings varies from 49 per cent for the city of Troy to 868 per cent for the twin cities Albany-Decatur. The weighted general ratings for the group as a whole increased from 23.2 to 56.1 per cent, an average improvement of 142 per cent.

It will be observed that the preenforcement ratings given in Table 7 are, on the average, about 5 per cent lower than the preenforcement ratings given in Table 4 of the July 30, 1926, issue of the PUBLIC HEALTH REPORTS. This is the result of a new policy adopted of disbarring all "estimates" of bacterial counts and temperatures, and accepting only actual counts and temperatures upon a minimum number of samples. In the tables given in the July 30 issue of the PUBLIC HEALTH REPORTS an attempt was made to estimate where figures were not complete, but this is believed to be dangerous practice and is no longer followed.

CONSUMPTION OF MARKET MILK

Table 8 shows the increase in the volume of market milk sales in the 14 communities.

It is difficult to believe that the sales of market milk have increased 90 per cent on the average in these 14 Alabama towns, particularly as the increase shown by the December, 1925, survey was only 49.2

per cent. However, it should be noted that the December, 1925, figures were for a period of extreme milk shortage, and that had it not been for this shortage the increase in milk consumption shown at that time would have been much greater than 49 per cent.

TABLE 7.—*United States Public Health Service general milk supply rating*

Community	Preen-forcement rating	April, 1926	Percentage improvement
Albany-Decatur	8.1	78.4	868
Eufaula	17.1	41.4	142
Florence	20.5	93.1	354
Gadsden	21.8	47.5	118
Huntsville	24.0	72.4	201
Jasper	10.1	59.6	490
Mobile	22.5	48.1	113
Montgomery	27.5	53.6	95
Selma	24.3	48.0	97
Sheffield	17.9	63.6	255
Troy	29.9	44.7	49
Tuscaloosa	22.6	75.0	232
Group weighted average	23.2	56.1	142

TABLE 8.—*Increase in market milk sales*

Community	Preen-force-ment (gallons per day)	April, 1926 (gallons per day)	Percentage increase
Albany-Decatur	177	315	78
Eufaula	91	112	23
Florence	277	347	25
Gadsden	362	389	8
Huntsville	365	665	82
Jasper	90	178	98
Mobile	[1] 2,000	3,797	90
Montgomery	1,588	4,030	154
Selma	605	625	3
Sheffield-Tuscumbia	298	415	39
Troy	175	414	137
Tuscaloosa	505	1,126	123
Total	6,533	12,413	90

[1] This volume is estimated.

The Alabama State Board of Health Bureau of Inspection has for more than a year collected and compiled production and sales data every time a dairy inspection is made. This information is collected directly from the dairymen, and is felt to be as accurate an approximation as it is possible to obtain.

MANNER OF ADMINISTRATION OF THE ORDINANCE

Each of the 14 communities discussed in this paper is located in a county which is served by a full-time county health unit. Each of them employs a sanitary inspector who, in most cases, combines milk inspection with other duties. The local sanitary inspector takes milk

samples, makes dairy inspections, and performs the other enforcement details of the Standard Milk Ordinance.

The Bureau of Inspection of the State Board of Health employs two district State milk inspectors, whose duties are to coordinate the milk sanitation activities of the various local inspectors so that the interpretation of the ordinance by all local inspectors will be uniform. All milk samples and disease-carrier specimens are sent to a branch of the State laboratories, of which there are seven, so located that samples shipped in insulated cases may be kept under 50° F. through the period of transit.

Grades are announced every three months in each of the Standard Ordinance communities, and in each case the State inspector cooperates with the local inspector in awarding grades, so as to insure that grades will be awarded uniformly throughout the State.

Full duplicate records are kept in the State Bureau of Inspection, which is thus kept constantly informed of the status of milk sanitation throughout the State.

CONCLUSION

In conclusion, it is believed to be a conservative statement that the Standard Ordinance has materially helped to bring about the following observed results in 14 Alabama towns:

(1) A marked improvement in the quality of the retail raw milk supplies, the retail raw milk rating increasing from 43.9 per cent to 94.3 per cent, an improvement of 115 per cent.

(2) A marked improvement in the quality of the raw milk delivered to Pasteurization plants, the raw milk to plants rating increasing from 46.2 per cent to 90.8 per cent, an improvement of 97 per cent.

(3) A marked improvement in the care with which the Pasteurization process is applied, the Pasteurization process rating increasing from 22.2 per cent to 85.8 per cent, an increase of 286 per cent.

(4) An increase in the percentage of milk Pasteurized, the percentage for the group of towns as a whole increasing from 6.9 to 21.6 per cent, and the number of towns provided with Pasteurized milk increasing from 3 to 9, 5 of these now having over 50 per cent of the milk Pasteurized.

(5) A marked increase in the general milk sanitation rating, which summarizes the combined effect of the three specific ratings and of the percentage of milk Pasteurized. The general rating of the group of 14 communities has increased from 23.2 to 56.1 per cent, an improvement of 142 per cent.

(6) A marked increase in the consumption of market milk, the combined consumption having increased from 6,533 gallons per day to 12,413 gallons per day, representing an increase of 90 per cent.

THE ORTHOTOLIDINE REAGENT FOR FREE CHLORINE IN WATER

By Emery J. Theriault, *Chemist, United States Public Health Service*

Orthotolidine was first proposed by Phelps (1909) as a qualitative test for the detection of minute amounts of free chlorine and hypochlorites "in connection with a court case in which the presence or absence of residual available chlorine was a matter in dispute" (*cf.* Phelps and Shoub, 1917, p. 769).

According to Kinnicutt (1909) the reagent employed by Phelps consisted of a solution of orthotolidine in dilute sulphuric acid.

Seith (1913), without success, used a solution containing 0.1 per cent of orthotolidine in 10 per cent acetic acid. "Instead of a yellow color in the more dilute samples which had been treated with hypochlorite, a green color appeared which gradually deepened and changed to yellow and finally to deep red as the concentration of free chlorine increased." In one instance a light blue color was obtained. "No explanation for this is attempted."

Ellms and Hauser (1913), using the acetic acid solution of Seith (1913), concluded that "the variations in the colors formed appeared to be intimately associated with the original degree of (titratable) alkalinity of the water * * *. The higher the original alkalinity of the water containing free chlorine, the bluer is the shade of color produced. The more nearly neutral is the water being examined, the yellower the tint." On the other hand, Ellms and Hauser also found that, even with small amounts of free chlorine, a deep yellow color is produced when the orthotolidine reagent is prepared with hydrochloric acid. They accordingly proposed the use of a reagent containing "one-tenth per cent *o*–tolidine in a 10 per cent solution of hydrochloric acid. This reagent does not deteriorate on standing." The more recent studies of Clark, Cohen, and Gibbs (1926, p. 41) have furnished a very satisfactory explanation for the color transformations of orthotolidine. "A return to the blue color test would be useful in the examination of colored waters and could now be logically designed, but it is improbable that the specifications would be simple enough for field use."

Ellms and Hauser (1914) experimented with a sulphuric acid solution of orthotolidine. "It is apparent from these tests that a sulphuric acid solution of orthotolidine is not as much affected by ferric salts and nitrites as is the hydrochloric acid solution. However, a sulphuric acid solution of orthotolidine is not as easily prepared as one of hydrochloric acid and * * * does not seem to be able to indicate quite as small amounts of free chlorine as does the hydrochloric acid solution."

Forsberg (1926) concludes that "dilute solutions of ferrous and manganous salts, up to 10 p. p. m., do not react with ortho tolidine." Also, "for all practical purposes, ferric salts do not interfere with the accuracy of the ortho tolidine test." However, "water containing manganese as manganic hydroxides gives the same reaction with ortho tolidine as chlorinated water, irrespective of whether a water, alcohol, sulphuric or hydrochloric acid solution of the reagent is used." Interference by manganese compounds has also been reported by Olzewiski (1923), Hale (1926), Montfort (1926), and others. Montfort (1926) also considers that when applied to the determination of free chlorine in water treated with hypochlorites, "the ortho tolidine test becomes one for chlorates rather than for chlorine."

According to "Standard Methods for the Examination of Water and Sewage" (1917, 3d edition), the reagent in question was to be prepared by dissolving one gram of orthotolidine, purified by recrystallization from alcohol, in 1 liter of 10 per cent hydrochloric acid. By weight, therefore, there should be added about $\frac{100}{(1.18)\ (0.3539)}=$ 240 c. c. of 35 per cent HCl per liter. These directions were repeated in "Standard Methods" for 1920. In more recent editions it is specified that the reagent should be prepared by dissolving 1 gram of orthotolidine, melting point 129° C., in 1 liter of dilute hydrochloric acid ("100 c. c. concentrated acid to 1 liter.") Orthotolidine of the requisite purity may be obtained from a designated manufacturer or else it may be prepared "by extraction from water from the technical product in a Soxhlet apparatus" (5th edition, 1923, first reprinting, p. 44; see also 6th edition, 1925, p. 44).

Roake (1925) found it difficult to prepare the orthotolidine reagent by the usual procedure of dissolving one gram of the recrystallized salt in one liter of 10 per cent hydrochloric acid. The orthotolidine does not dissolve completely, at least in a reasonable time, and, on filtering off the undissolved part, a weaker solution is obtained than called for. In certain cases this might lead to appreciable error. Roake gives the following directions for preparing the reagent:

"To 1 gram of *o*–tolidine add the calculated amount of hydrochloric acid ("about 236 c. c."), stir well, dilute to about 500 c. c. and filter. The residue left on the filter will be found to be soluble in distilled water. Make up to 1 liter."

The following procedure avoids the filtration recommended by Roake and gives very satisfactory results.

PREPARATION OF ORTHOTOLIDINE REAGENT

1. Weigh out 1 gram of orthotolidine, transfer to a 6-inch mortar, and add 5 c. c. of 1:5 hydrochloric acid (previously prepared by adding 100 c. c. of concentrated hydrochloric acid, sp. gr. 1.18–1.19, to 400 c. c. of distilled water).
2. Grind to a thin paste and add 150 to 200 c. c. of distilled water. The orthotolidine goes into solution immediately.
3. Transfer to a 1,000 c. c. graduate and make up to 505 c. c. with distilled water.
4. Make up to the 1,000 c. c. mark by adding the balance (495 c. c.) of the 1:5 hydrochloric acid.

These directions are based on the fact that, while orthotolidine itself is quite insoluble in distilled water, the compound obtained by treating it with a small amount of hydrochloric acid is relatively soluble. (One gram of orthotolidine treated with 5 c. c. of 1:5 HCl will dissolve in about 60 c. c. of distilled water). As the hydrochloride which is presumably formed is relatively insoluble in hydrochloric acid, the solution is first diluted to 505 c. c. before adding the balance of the hydrochloric acid. The reagent prepared in this manner will contain 1 gram of orthotolidine and 100 c. c. of concentrated hydrochloric acid, specific gravity 1.18–1.19, per liter, in exact conformity with Standard Methods. The directions may also be used for the preparation of a reagent containing 10 per cent of HCl *by weight* corresponding roughly to 240 c. c. of concentrated hydrochloric acid, specific gravity 1.18–1.19, per liter. Also, using only 100 c. c. of concentrated acid, a reagent may easily be prepared which contains 2 grams of orthotolidine per liter.

The desired yellowish colorations will be obtained when 1 c. c. of the usual reagent is added to 100 c. c. of a chlorine-containing sample, provided (*a*) that its volumetric alkalinity does not exceed, say, 400 or 500 parts per million, and (*b*) that its chlorine content is less than 4 or 5 parts per million (*cf.* Ellms and Hauser, 1912; also Muer and Hale, 1925). When the volumetric alkalinity of the sample is too high, it is a matter of common knowledge that bluish-green colorations are obtained. On the other hand, in solutions which are distinctly acid, orange-red colorations may result if relatively large amounts of free chlorine are present. These reddish hues tend to become lighter in color as the amount of chlorine is increased, and, if a sufficient excess of free chlorine is added, yellowish colorations may eventually be again obtained. At higher pH values, almost any desired shade of color may be obtained by varying the proportion of reagent added to the amount of free chlorine present. In this connection it is interesting to note that a field test for hypochlorite dosage which depends on the formation of an orange-red color with ortho-

tolidine has recently been adopted by the Medical Department of the United States Army (Anon., 1925).

Muer and Hale (1925) recommend that 5 c. c. of reagent (1 gram of orthotolidine in 1,000 c. c. of water containing 100 c. c. of concentrated HCl) be used when the sample under examination contains from 1 to 10 parts per million of free chlorine. Five cubic centimeters of orthotolidine reagent added to 100 c. c. of a chlorinated sample should also give a suitable acid solution even with exceedingly hard waters. If desired, a reagent of somewhat greater strength in respect both to orthotolidine and to acid content could be prepared by the procedure described above. For general use, such a reagent might possess certain advantages over the more dilute solution.

Finally, it may be remarked that, using the method of Palkin (1923), notable differences were found to exist in the actual orthotolidine content of four widely advertised brands of this chemical. The color of the reagents prepared from these four samples of orthotolidine also differed appreciably. On the score of cleanliness, actual purity, and clarity of the resulting reagent, the brand recommended in Standard Methods (1925, p. 44) is undoubtedly to be preferred. However, as a practical matter, it is to be noted that the sensitiveness to free chlorine of the reagents prepared with these four different brands of orthotolidine was very much the same regardless of the color of the reagent or the purity of the chemical. Furthermore, excluding gross impurities, all four brands were found to dissolve completely and with equal facility in a solution containing 10 per cent of HCl by weight.

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PUBLIC HEALTH ENGINEERING ABSTRACTS

Investigations of Mosquito Problems in New Jersey. Willem Rudolfs. Proceedings of the Thirteenth Annual Meeting of New Jersey Mosquito Extermination Association, February, 1926, pp. 33-51. (Abstract by J. A. LePrince.)

The causes of disappearance of oil films from water and the effect of material on oil are discussed. Oil remained present on distilled water for 20 days and disappeared from water containing hydrogen sulfide gas in three hours. The reaction of mosquitoes to mosquito repellents was studied. Pyrethrum extract and other substances were tried. Protection appears to be based on the volatility of the oils or active substances in the materials. When mixed with vaseline, volatilization is retarded and the user is protected longer. The best repellents used alone lasted from one-half to one and a half hours, but when used in jelly or powder form they lasted from two to three hours. The experiments were carried out with mosquitoes alighting at the rate of 5 to 20 per minute.

In this paper the food supply of mosquito larvae is discussed in detail and this food supply, which appears to be dependent on the chemical composition of the water, is the main factor governing breeding.

Anopheles Mosquitoes and Malaria at Eastern Army Stations. Maj. William Borden. *Military Surgeon*, vol. 59, No. 4, October, 1926, pp. 452–469. (Abstract by L. D. Fricks.)

A comparison of the literature bearing upon the relative importance of the three common species of *Anopheles* in transmitting malaria with the reports of malaria incidence and mosquito prevalence at 15

United States Army stations along the Atlantic coast. The literature seems to show that *A. quadrimaculatus* is the principal vector of malaria in the United States. A tabulation was made by months, of the various species of *Anopheles* mosquitoes sent to the Army Medical Museum for identification from these stations during a period of four years, 1921 to 1924. A comparison of these tables with the reports of malaria cases sent in from the same stations at the same time seems to corroborate the literature. That is, most of the malaria was reported during May, June, July, August, September, and October, while *A. quadrimaculatus* was most abundant during June, July, August, September, and October.

Mosquito Work Throughout the World. L. O. Howard. *American Journal of Public Health*, vol. 16, No. 12, December, 1926, pp. 1210–1214. (Abstract by J. A. LePrince.)

Up to 35 years ago no concerted intelligent effort had been undertaken in any part of the world to reduce mosquito population. At that time the detailed life history of only one species of mosquito was known. To-day, mosquito-control work is going on all over the world. The greatest mass of this work is being done against disease-conveying species of mosquitoes. New information relative to the behavior of the less common *Anopheles* is being recorded from time to time. Great variations in habits of life occur in the nondisease-bearing mosquitoes. Some forms are found at considerable altitudes in the far North, and the woods mosquitoes of the northern states of Canada breed in pools of melting snow water in the spring.

Pestiferous mosquitoes, when in great abundance, have significance from the health point of view and have considerable effect on property values and general economic prosperity. Since the State of New Jersey has been controlling the salt-marsh mosquito pest of her seacoast, the resorts are flourishing as never before, and the State is far richer in the taxable value of her coastal land. This work is being done largely through engineering methods and should be classified as sanitary engineering.

In 1925 a great flight of salt-marsh mosquitoes in three States on the Gulf coast temporarily interrupted a justifiable real estate advance and discredited much excellent malaria-control work being conducted by local health officers. Heavy mosquito prevalence does endanger public health. One-half of the salt-marsh area of the United States is within the State of Louisiana where investigations relative to mosquito-control measures are now being conducted by the United States Public Health Service.

In protecting northern summer resorts we must determine which species of mosquitoes are involved. Where the problem is to abolish the temporary breeding places of the early spring mosquito crops, the removal of permanent standing water will not solve the problem.

The mosquito-control measures conducted during the World War gave considerable impetus to mosquito-control work, and some of the papers and books written on this subject are referred to in this article.

Control of all species of pestiferous mosquitoes is sanitary work and should be promoted by sanitary authorities. Engineers, sanitarians, and all others engaged in mosquito-control measures can get more satisfactory and more economical results by cooperating closely with entomologists.

In most localities mosquito annoyance and mosquito-borne disease are unnecessary and can be controlled. Experimental work of potential practical value is being done which may lead to easier and more efficient control measures.

Substantial Accomplishment in New Jersey Mosquito Control. T. J. Headlee. Proceedings of Thirteenth Annual Meeting New Jersey Mosquito Extermination Association, February, 1926, pp. 20–26. (Abstract by J. A. LePrince.)

This paper indicates what has been accomplished—the reduction of mosquito prevalence obtained in large sections of a number of counties and the resulting financial benefits. Under New Jersey coastal conditions where salt-marsh mosquitoes are naturally absent there has occurred an average increase in taxable values during the last 10 years of 55 per cent more than where they are still present or only very recently reduced; and where salt-marsh mosquitoes have been largely eliminated during the last 10 years, there has occurred an average annual increase of 75 per cent more than where they are still present or very recently reduced.

Preventable Diseases and Their Effect on the Labor Supply. W. Machlaclan McDonald. Collected Papers on Tropical Diseases, Government Printing Office, Leewards Islands, Antigua, B. W. I. (A paper read at a meeting of the Agricultural and Commercial Society, Antigua, May, 1920.) (Abstract by J. A. LePrince.)

The main points presented are that control of malaria is desirable and profitable, that control is feasible, and that the loss of efficiency caused by malaria is greater than that caused by any other two or three diseases combined. Of 50 cases examined, more than half showed the parasites of malignant tertian malaria, and a condition of chronic anemia which, even in fever-free periods, reduces working capacity to about one-half normal. The writer believes that the reduction of *Anopheles* to within reasonable limits will effectively reduce malaria, that antimalaria work can be advantageously begun on a small scale, and that while the results obtained will be in proportion to the work done, successive reductions in *Anopheles* breeding places will bring reductions in fresh cases of malaria. Malaria has a very serious effect on the quantity and quality of labor supply. A bad type of malaria is now gaining ground in Antigua; and if infection is

allowed to go on unchecked, it is likely to become a serious problem. The fact is stressed that even a small amount of work will be of some value in reducing the number of fresh infections, and the important thing is to get control work started.

Mosquito Work During the Year 1925. L. O. Howard. Proceedings of Thirteenth Annual Meeting New Jersey Mosquito Extermination Association, February, 1926, pp. 6–19. (Abstract by J. A. LePrince.)

This paper outlines progress, discoveries, and advances in matters relating to mosquito control in a number of countries. During the year 1925, 38 new species of mosquitoes were described throughout the world, and the discovery of many new forms may be expected. Experimental work so far conducted with *Chara foetida* does not appear to show that it has any effect on *Anopheles* larvae. Top minnows, *Boecila spenops*, were taken from Panama to Samoa for use in mosquito control.

Soluble cresol is being used as a larvicide in England. A campaign in Madagascar, principally against malaria, resulted in a reduction of total mortality of 35 per cent. In Formosa an experiment involving 15,000 individual mosquitoes indicates that *Anopheles* had color preferences for yellow, white, deep red, and green, as compared to blue, purple, red, and black, while, on the other hand, with *Culex* and *Aëdes*, the preference was reversed. In the United States the yellow-fever mosquito is capable of carrying dengue, while *Culex fatigans* is probably not a vector.

Influence on Malaria of Helminthic Infestation. P. P. Moufell. Russian Jour. Trop. Med. 1926, No. 5, French summary, p. 78. Abstract by C. L. in *Tropical Diseases Bulletin*, vol. 23, No. 11, November, 1926, p. 818.

"Examination of 1,060 malarial cases by Fulleborn's method (presumably his flotation one) showed ova of intestinal worms in 35 per cent and eosinophilia in 35 per cent. The records of helminthic invasion (or, more accurately, the detection of the presence of eggs) in chronic malarial cases did not authorize the conclusion that helminthiasis predisposes to chronic malaria, but disinfestation might be followed by very favorable malarial results."

Studies of an Epidemic of Malaria at the Gantt Impounded Area, Covington County, Ala. W. G. Smillie. *The American Journal of Hygiene*, vol. 7, No. 1, January, 1927, pp. 40–72. (Abstract by J. A. LePrince.)

This article is well illustrated by photographs, maps, and charts, and covers a period of a year previous to the impounding of water and two years subsequently thereto. The lake was narrow and about 9 miles long, thus largely reducing the usual beneficial effect of wave action. Previous to the impounding of water there was very little malaria in the area near the lake, though a few cases were seen at

the construction camp, and after the impounding there were 238 cases in one season in a population of 742. Nearly all of the cases were within a mile of the edge of the lake, and the density of malaria was in direct proportion to the density of *Anopheles quadrimaculatus*.

The brush and trees in the lake bed were slashed, left where they had fallen, and later flooded. Suitable adult *Anopheles* catching stations were selected, and *Anopheles* counts made periodically. Large numbers of *Anopheles quadrimaculatus* were found in the months of August and September, and, in general, these adults were numerous near the uncleared sections of the lake and relatively scarce near that portion of the lake which was properly cleared of débris and flotage. Lowering of the lake level sufficiently to strand flotage and to remove water from the slashed-over area terminated *Anopheles* production and largely reduced malaria.

The writer is of the opinion that in the United States during the past 100 years the gradual elimination of rural mill ponds has been an important factor in the malaria reduction that has taken place over a great part of the country.

In the area under observation the flight range and other habits of *Anopheles quadrimaculatus* were found to be similar to those determined by previous observers in North Carolina and South Carolina.

Malaria in the Kingdom of the Serbs, Croats, and Slovenes. Dr. A. Stampar. League of Nations Health Organization, C. H. 326, pp. 26–36. (Abstract by L. D. Fricks.)

A general discussion of the malaria problem of Yugoslavia and report on control program adopted since the World War. Exact figures are not given, but it is stated that more than a million of the population are suffering from malaria. Macedonia shows the heaviest infection, Dalmatia next, and the valleys of the Save and Danube are the least infected, but still present a malaria problem.

A definite antimalaria program was adopted in 1923 and has been continued since. Antimalaria stations were established in the three malarious regions of the Kingdom and intensive antimalaria campaigns were conducted from these stations. The most important steps were taken—The collection of malaria data, dispensing quinine, educational measures, minor drainage, and larvae destruction.

Water Softening Problems and Their Remedies.—Frank S. Taylor, chemist, water softening and purification works, Greenville, Ohio. *Water Works Engineering*, vol. 79, No. 24, December 15, 1926, pp. 1579–1580 and 1607–1608. (Abstract by H. V. Pedersen.)

In this article the author describes the new water-softening plant recently constructed at Greenville, Ohio. The water is secured from two sources, namely, two wells and the Greenville Creek. The well water is pumped by air lift to a receiving well, which is also connected with a gravity flow from the creek. The plant is supplied

with a Dorr clarifier, a mixing chamber, four dry-feed machines to feed hydrated lime, soda ash, and alum, a sedimentation basin, four ¾-million gallon capacity filters, carbonation equipment, and the clear well.

When the plant was first placed in operation the mixing tanks gave trouble owing to the slipping of the drive belt. A positive drive was installed to overcome the difficulty. Various troubles were also experienced with the new drive-feed machines and rate of flow gauges and controller valves, but were all overcome by changing the method of operation and by making some mechanical change. Considerable trouble was experienced with the carbonation equipment. The scrubber drain would clog with fine coke particles. This trouble was overcome by causing the drain pipes to empty into a bucket of water, thereby forming a water seal. Considerable trouble has been experienced with the pitting of valve seats due to the sulphur content in the coke.

In spite of the various difficulties experienced in getting the new plant operating smoothly, the author states that good results have been obtained. The treated water is clear and sparkling and has been reduced from a total hardness of 455 p. p. m. to 125 p. p. m. The people of the city are very well satisfied with the results of the new plant, as indicated by a lady calling the author and telling him that her goldfish, which she prized very highly, were doing very well.

Water Softening as an Adjunct to Purification. Charles P. Hoover, chemist in charge, water purification works, Columbus, Ohio. From a paper presented at the Ninth Texas Water Works Short School, Dallas, Tex., January 24–29, 1927. (Abstract by V. M. Ehlers.)

Superchlorination and dechlorination.—One of the most interesting developments at the present time is the use of superchlorination and dechlorination at Toronto for securing elimination of tastes and odors in connection with sterilization.

There has recently come to attention an interesting experiment at Greenville, Tenn., where ammonia is being fed in doses of about 0.35 p. p. m. to the inlet of the mixing chamber of a lime-softening plant in order to eliminate odors previously noticed in the treated supply.

Water softening.—There are now two municipal water supplies in this country softened by zeolite. One is the plant at McKees Rocks, Pa., operated by the Ohio Valley Water Co., and the other is at Coopersville, Ohio, operated by the municipality. Both of these plants have about 4.5 m. g. d. capacity.

Very good results have been reported from Columbus from the use of sodium aluminate in connection with lime-soda softening as a means of reducing the residual hardness lower than can be ordinarily obtained.

Effluent aeration.—At Providence, R. I., and West Palm Beach, Fla., the effluent of soft, highly colored waters is aerated, as well as the influent, in order to adjust the point and lessen corrosiveness without adding much, if any, lime.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Statute requiring vaccination of pupils held constitutional; furnishing of certificate of unfitness.—(New Hampshire Supreme Court; Barber v. School Board of Rochester et al., 135 A. 159; decided November 2, 1926.) A State law provided as follows:

> No child shall attend a public or private school in this State unless he has been vaccinated; * * * or holds a certificate of the local board of health that he is an unfit subject for vaccination. The local board of health shall issue such a certificate on the advice of a registered physician approved by it.

In 1924 certain school children had furnished certificates of unfitness. In 1925 new certificates were demanded by the local school board, and, in a proceeding brought by the father of the children, two questions were raised, (1) whether the statute was constitutional and (2) whether the school board could require a new exemption certificate after one had been furnished. Regarding the first question raised, the supreme court decided that the statute was constitutional. Regarding the second, the court stated as follows:

> * * * The statute is silent as to how often a certificate may be required. It was the legislative intent to provide efficient protection, and the statute is to be construed accordingly. Conditions making it improper to vaccinate the child at one time might not exist at a later date. (Jacobson v. Massachusetts, 197 U. S. 11, 25 S. Ct. 358, 49 L. Ed. 643, 3 Ann. Cas. 765.) Assuming that the physical conditions might be such as to show that the child never would be a proper subject for vaccination, and also assuming that, in such a case, no more than one certificate could be required, the point of the present controversy is not reached. There is nothing to show the existence of such conditions here. The plaintiff rests his case upon the proposition that, in all cases, one certificate is sufficient for all time. This construction can not be adopted. The meaning of the statute is that a new certificate may be required whenever there is reasonable ground to believe that there may have been such a change of conditions that the child is no longer "an unfit subject for vaccination."

City held liable for pollution of stream.—(South Dakota Supreme Court; Gellert v. City of Madison et al., 210 N. W. 978; decided December 6, 1926.) The plaintiff occupied land which was crossed by a small stream. The defendant city discharged its sewage into the said stream immediately above the plaintiff's premises, and by reason thereof the stream became so polluted as to cause such premises to be uninhabitable. The plaintiff brought action against the city for damages, and the city contended that it was not liable unless it was shown to have been negligent in the construction of its

sewer system. One of the provisions of the State constitution provided that "private property shall not be taken for public use, or damaged, without just compensation." The court rejected the city's contention, stating as follows:

In some States, whose constitutions do not contain the provision as to damaging, the courts have held as contended for by appellant. But this court has repeatedly held that cities are liable for consequential damages arising from the construction of improvements where no negligence is proven. The law of this State is well established upon that point.

City held without power to require license of bakeries in addition to State license.—(Wisconsin Supreme Court; Wisconsin Association of Master Bakers et al. *v.* City of Milwaukee et al., 210 N. W. 707; decided November 9, 1926.) An ordinance of the city of Milwaukee required a license of those engaged in the business of conducting bakeries. No provision of the city charter expressly authorized the city to license, or to exact a license fee from, those engaged in such business. A provision of a State law had authorized cities of 5,000 inhabitants or over to license bakeries, but a later law had struck out this provision and inserted in lieu thereof a provision requiring a State license. In a suit to restrain the enforcement of the Milwaukee ordinance, the supreme court's holding was adverse to the validity of the ordinance, the following appearing in the opinion:

* * * It will thus be seen that, when the legislature provided for the issuance of such licenses by the State, it expressly repealed the authority theretofore granted to cities to issue such licenses. In view of this legislation, the power of cities to require an additional license can not rest in implication, and should not be accorded by construction. Furthermore, no necessity for a municipal license appears. An examination of sections 98.16 to 98.30, inclusive Stats., all of which relate to the sanitary regulation of bakeries, indicates that the health commissioner of the city of Milwaukee enjoys all the power of inspection under the State law that is accorded to him by this ordinance, and the imposition of an additional license fee upon the bakers of Milwaukee is a burden not warranted by law, but would seem to be most unnecessary and unreasonable in fact. * * *

Typhoid fever held not compensable under workmen's compensation act in instant case.—(California Supreme Court; Pattiani *v.* State Industrial Accident Commission et al., 250 P. 864; decided November 9, 1926.) An employee of a San Francisco company, which was engaged in the maintenance and operation of drug stores, was sent by his employers upon a business trip, in the course of which he visited a number of cities, including New York. During his few day's stay in New York City he ate some raw oysters, and while on his homeward trip he was taken ill with what was finally determined to be typhoid fever. At the time of the employee's visit to New York City an epidemic of typhoid fever existed there. An award under the workmen's compensation act was denied by the State industrial accident commission, and the supreme court affirmed the order of the

commission. The reason for the denial of compensation is shown by the following extract from the court's opinion:

In the instant case, however, no such direct connection between the employee and his infection with the disease of typhoid was shown; on the contrary, his attempted proof of such connection was negatived by the commission in its finding that the evidence did not establish the fact that the epidemic of typhoid in New York was caused or aggravated by contaminated oysters. No other direct contact between the petitioner herein and the existing epidemic of typhoid in New York during the brief period of his visit there being shown, we are of the opinion that the commission was correct in holding that the evidence before it was insufficient to show a special exposure arising out of the employment, and that the mere fact that there was an epidemic of typhoid fever in said city during the period of the petitioner's visit there constituted an exposure or risk of the commonalty in general and was not peculiar to or characteristic of his employment, and for that reason compensation to the applicant was properly denied.

City ordinance for the collection and removal of garbage and refuse upheld.—(Arkansas Supreme Court; Porter et al. *v.* City of Hot Springs, 287 S. W. 585; decided November 8, 1926.) An ordinance of the city of Hot Springs authorized the board of public affairs of the city to enter into a contract for a period of years with some suitable person for the removal of garbage and other refuse, and prohibited the removal of such substances by other persons. A provision of the ordinance, however, authorized the issuance of permits to persons for the removal of "kitchen refuse commonly known as swill." This ordinance was held valid in an action brought to restrain its enforcement.

Change in law held not to release county from contract for tuberculin testing of cattle.—(Minnesota Supreme Court; State ex rel. Hilton, Atty. Gen., et al. *v.* Board of Commissioners of Lincoln County et al., 210 N. W. 635; decided November 12, 1926.) Pursuant to a statute, a county entered into a contract with the State sanitary board and the Federal Bureau of Animal Industry for the testing of all cattle in the county for tuberculosis with the object of making the county a modified accredited tuberculosis-free area. Pursuant to the contract, a certain sum was appropriated by the county to assist in the expense of conducting the first test, which test was made and paid for. By the terms of the contract the county had agreed to appropriate further amounts for necessary additional tests, but the county refused to raise further sums and a mandamus proceeding was brought to compel the county board to levy a tax for that purpose. A statute, enacted after the county had made the contract, changed materially the amount of indemnity paid to cattle owners, no indemnity being paid for certain condemned animals, but the supreme court's view was that "the legislature may amend the statutes relating to testing animals and the payment for condemned animals without thereby releasing the parties from the contract."

County required to pay fees of local registrar of vital statistics.—(Kentucky Court of Appeals; Darnaby, County Treasurer, et al. *v.* Furlong, 287 S. W. 913; decided October 19, 1926.) The court in this case adhered to a previous decision (Furlong *v.* Darnaby, 257 S. W. 707, decided April 24, 1923), and held that a county was required, in conformity to a State law, to pay the fees due to a local registrar of vital statistics for duties performed by him.

TRAPPING SURVEY IN LOS ANGELES COUNTY BEING MADE BY THE COUNTY HEALTH DEPARTMENT

Dr. J. L. Pomeroy, county health officer of the county of Los Angeles, calls attention to the fact that the trapping survey of rat conditions in the county adjacent to the city of Los Angeles is being made by the county health department and not by the city department of health, as stated in Public Health Reports for February 4, 1927, page 347. Doctor Dickie stated in his letter that this action was being taken by the county department of health.

DEATHS DURING WEEK ENDED FEBRUARY 26, 1927

Summary of information received by telegraph from industrial insurance companies for week ended February 26, 1927, and corresponding week of 1926. (From the Weekly Health Index, March 3, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 26, 1927	Corresponding week 1926
Policies in force	66, 849, 234	63, 454, 977
Number of death claims	11, 837	12, 366
Death claims per 1,000 policies in force, annual rate	9. 2	10. 2

Deaths from all causes in certain large cities of the United States during the week ended February 26, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 3, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 26, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Feb. 26, 1927 [2]
	Total deaths	Death rate [1]		Week ended Feb. 26, 1927	Corresponding week 1926	
Total (67 cities)	7, 888	13. 9	15. 8	924	1, 016	[3] 76
Akron	34			4	6	43
Albany [4]	43	18. 7	21. 0	7	3	146
Atlanta	75			10	13	
White	39			3	4	
Colored	36	(5)		7	9	

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Feb. 25, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended February 26, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 3, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 26, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Feb. 26, 1927
	Total deaths	Death rate		Week ended Feb. 26, 1927	Corresponding week 1926	
Baltimore [4]	251	16.0	19.1	27	29	83
White	186		17.9	16	20	62
Colored	65	(5)	28.5	11	9	171
Birmingham	59	14.3	23.7	9	10	
White	18		17.1	2	5	
Colored	41	(5)	33.9	7	5	
Boston	245	16.1	14.7	26	26	73
Bridgeport	38			2	9	37
Buffalo	144	13.7	14.9	23	24	97
Cambridge	35	14.7	11.1	4	3	71
Camden	42	16.5	22.7	5	7	86
Canton	16	7.4	12.8	1	5	24
Chicago [4]	766	12.9	12.9	95	92	83
Cincinnati	145	18.4	15.2	10	15	62
Cleveland	225	11.9	12.5	27	32	71
Columbus	94	16.8	13.0	9	5	84
Dallas	51	12.7	18.5	5	8	
White	36		16.6	4	7	
Colored	15	(5)	30.9	1	1	
Denver	102	18.3	19.8	12	7	
Des Moines	25	8.7	20.4	5	2	81
Detroit	338	13.2	15.0	68	60	107
Duluth	21	9.5	13.8	0	3	0
El Paso	25	11.4	20.6	5	6	
Erie	26			3	4	59
Fall River [4]	44	17.3	12.7	8	1	141
Flint	27	9.8	7.7	4	3	65
Fort Worth	40	12.7	10.2	7	4	
White	32		8.9	7	2	
Colored	8	(5)	19.2	0	2	
Grand Rapids	29	9.5	9.7	2	4	29
Houston	54			8	7	
White	37			6	4	
Colored	17	(5)		2	3	
Indianapolis	107	14.9	17.0	12	18	94
White	93		16.8	11	15	99
Colored	14	(5)	19.0	1	3	61
Jersey City	76	12.3	14.9	8	13	60
Kansas City, Kans.	30	13.4	12.9	6	1	117
White	24		13.0	5	1	111
Colored	6	(5)	12.7	1	0	152
Kansas City, Mo.	120	16.3	16.0	8	13	
Los Angeles	259			14	19	40
Louisville	82	13.4	14.1	8	11	68
White	60		13.4	7	10	68
Colored	22	(5)	17.8	1	1	70
Lowell	22	10.4	17.0	4	8	77
Lynn	27	13.4	13.0	4	1	106
Memphis	74	21.6	25.0	7	8	
White	42		14.6	2	1	
Colored	32	(5)	43.9	5	7	
Milwaukee	111	11.0	10.7	19	19	89
Minneapolis	99	11.7	9.0	10	7	56
Nashville [4]	41	15.5	18.3	5	7	
White	27		17.0	3	7	
Colored	14	(5)	21.4	2	0	
New Bedford	33	14.4	9.6	7	7	121
New Haven	46	13.0	11.5	2	4	28
New Orleans	157	19.3	24.5	18	12	
White	100		18.3	4	3	
Colored	57	(5)	42.1	14	9	
New York	1,565	13.7	15.9	176	217	73
Bronx Borough	186	10.5	11.4	14	14	45
Brooklyn Borough	540	12.4	14.2	73	75	75
Manhattan Borough	644	18.5	22.3	71	99	83
Queens Borough	149	9.6	10.1	15	25	64
Richmond Borough	46	16.3	19.3	3	3	56

[4] Deaths for week ended Friday, Feb. 25, 1927.

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended Febuary 26, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 8, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 26, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Feb. 26, 1927
	Total deaths	Death rate		Week ended Feb. 26, 1927	Corresponding week 1926	
Newark, N. J.	100	11.2	14.1	9	18	45
Norfolk	48	14.0	14.4	6	6	121
White	15		12.2	1	1	33
Colored	33	(5)	18.2	5	5	265
Oakland	63	12.3	13.0	9	11	105
Oklahoma City	33			6	4	
Omaha	58	13.8	16.4	5	7	56
Paterson	29	10.5	15.3	4	6	71
Philadelphia	539	13.8	20.5	58	70	77
Pittsburgh	212	17.2	14.6	25	24	87
Portland, Oreg.	116			6	4	63
Providence	55	10.2	15.7	5	7	42
Richmond	47	12.8	35.3	5	8	66
White	19		32.7	1	4	20
Colored	28	(5)	41.7	4	4	152
Rochester	80	12.9	14.6	7	12	59
St. Louis	208	12.9	15.1	16	20	
St. Paul	64	13.3	12.8	2	3	18
Salt Lake City [4]	36	13.8	15.3	6	4	91
San Antonio	70	17.3	21.6	12	15	
San Diego	51	23.1	25.6	1	3	21
San Francisco	148	13.4	15.1	12	15	75
Schenectady	30	16.8	11.8	5	4	149
Seattle	80			3	5	31
Somerville	21	10.7	10.4	4	3	114
Spokane	38	18.2	21.0	5	3	125
Springfield, Mass.	32	11.4	12.6	5	5	77
Syracuse	64	16.9	12.4	5	10	64
Tacoma	27	13.2	11.8	3	1	71
Toledo	80	13.7	14.1	7	10	67
Trenton	49	18.6	19.5	3	8	52
Utica	42	21.3	19.7	4	6	91
Washington, D. C.	187	18.1	22.2	19	21	110
White	100		18.4	5	10	42
Colored	87	(5)	33.5	14	11	257
Waterbury	24			2	5	47
Wilmington, Del.	31	12.8	29.9	5	7	124
Worcester	61	16.3	12.4	9	4	108
Yonkers	28	12.3	12.6	5	6	114
Youngstown	33	10.2	8.8	10	4	140

[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11 Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended March 5, 1927

ALABAMA

	Cases
Chicken pox	35
Diphtheria	62
Influenza	82
Lethargic encephalitis	1
Malaria	21
Measles	244
Mumps	30
Ophthalmia neonatorum	1
Pellagra	5
Pneumonia	67
Poliomyelitis	1
Scarlet fever	22
Smallpox	40
Tetanus	3
Tuberculosis	169
Typhoid fever	25
Typhus fever	2
Whooping cough	58

ARIZONA

	Cases
Chicken pox	22
Diphtheria	7
Influenza	1
Measles	77
Mumps	1
Pellagra	1
Pneumonia	2
Scarlet fever	10
Tuberculosis	47
Typhoid fever	3

ARKANSAS

	Cases
Chicken pox	34
Diphtheria	2
Influenza	51
Malaria	26
Measles	20
Mumps	22

ARKANSAS—continued

	Cases
Pellagra	5
Scarlet fever	12
Smallpox	1
Tuberculosis	3
Typhoid fever	3
Whooping cough	26

CALIFORNIA

	Cases
Cerebrospinal meningitis—Los Angeles	1
Chicken pox	785
Diphtheria	130
Influenza	101
Jaundice (epidemic)	3
Lethargic encephalitis	2
Measles	3,748
Mumps	285
Poliomyelitis—Long Beach	1
Scarlet fever	238
Smallpox	12
Tuberculosis	205
Typhoid fever	5
Whooping cough	132

COLORADO

	Cases
Cerebrospinal meningitis	3
Chicken pox	30
Diphtheria	8
German measles	7
Impetigo contagiosa	1
Measles	362
Mumps	7
Pneumonia	6
Scarlet fever	54
Septic sore throat	4
Smallpox	8
Tuberculosis	21
Typhoid fever	2
Whooping cough	8

CONNECTICUT

	Cases
Cerebrospinal meningitis	1
Chicken pox	107
Diphtheria	29
German measles	7
Influenza	7
Malaria	1
Measles	146
Mumps	55
Pneumonia (broncho)	34
Pneumonia (lobar)	53
Scarlet fever	96
Septic sore throat	2
Tuberculosis (all forms)	32
Typhoid fever	1
Whooping cough	52

DELAWARE

Chicken pox	11
Diphtheria	4
Measles	10
Mumps	2
Pneumonia	4
Scarlet fever	41
Tuberculosis	7
Whooping cough	4

FLORIDA

Chicken pox	46
Diphtheria	23
Influenza	10
Malaria	6
Measles	147
Mumps	18
Scarlet fever	10
Smallpox	50
Tuberculosis	6
Typhoid fever	13
Whooping cough	22

GEORGIA

Cerebrospinal meningitis	1
Chicken pox	45
Conjunctivitis (infectious)	1
Diphtheria	12
Dysentery	2
Influenza	222
Malaria	9
Measles	102
Mumps	23
Pellagra	3
Pneumonia	50
Rabies	1
Scarlet fever	22
Septic sore throat	5
Smallpox	87
Tuberculosis	16
Typhoid fever	2
Whooping cough	46

IDAHO

Chicken pox	1
Diphtheria	1
Measles	62
Mumps	13
Pneumonia (broncho)	2
Rocky Mountain spotted fever	1
Scarlet fever	21
Tuberculosis	1
Whooping cough	4

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	3
Du Page County	1
Chicken pox	346
Diphtheria	109
Influenza	44
Measles	2,420
Mumps	580
Pneumonia	363
Poliomyelitis—Champaign County	1
Scarlet fever	370
Smallpox	34
Tuberculosis	325
Typhoid fever	6
Whooping cough	276

INDIANA

Chicken pox	169
Diphtheria	40
Influenza	27
Measles	215
Pneumonia	11
Scarlet fever	242
Smallpox	171
Tuberculosis	41
Typhoid fever	6
Whooping cough	72

IOWA

Cerebrospinal meningitis—Des Moines	1
Chicken pox	39
Diphtheria	20
Measles	498
Mumps	10
Scarlet fever	71
Smallpox	5
Tuberculosis	[1] 30
Typhoid fever	1
Whooping cough	14

KANSAS

Chicken pox	113
Diphtheria	24
Dysentery	1
German measles	8
Influenza	7
Lethargic encephalitis	1
Measles	737
Mumps	55
Pneumonia	73
Scarlet fever	188
Septic sore throat	2
Smallpox	43
Tuberculosis	53
Typhoid fever	2
Whooping cough	74

LOUISIANA

Diphtheria	18
Influenza	17
Malaria	3
Measles	106
Pneumonia	31
Scarlet fever	4
Smallpox	3
Tuberculosis	17
Typhoid fever	4
Whooping cough	24

[1] Includes delayed report.

MAINE

	Cases
Chicken pox	39
Diphtheria	3
German measles	68
Influenza	8
Measles	158
Mumps	9
Pneumonia	20
Scarlet fever	25
Tuberculosis	1
Typhoid fever	3
Vincent's angina	1
Whooping cough	51

MARYLAND [2]

Chicken pox	162
Diphtheria	60
German measles	6
Influenza	356
Measles	38
Mumps	44
Ophthalmia neonatorum	1
Pneumonia (broncho)	75
Pneumonia (lobar)	74
Scarlet fever	82
Septic sore throat	3
Tetanus	1
Trachoma	1
Tuberculosis	75
Typhoid fever	4
Whooping cough	91

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	206
Conjunctivitis (suppurative)	9
Diphtheria	87
German measles	16
Influenza	23
Lethargic encephalitis	3
Measles	271
Mumps	346
Ophthalmia neonatorum	48
Pellagra	1
Pneumonia (lobar)	137
Poliomyelitis	2
Scarlet fever	457
Septic sore throat	6
Tuberculosis (pulmonary)	84
Tuberculosis (other forms)	76
Typhoid fever	9
Whooping cough	143

MICHIGAN

Diphtheria	85
Measles	206
Pneumonia	123
Scarlet fever	364
Smallpox	25
Tuberculosis	61
Typhoid fever	10
Whooping cough	169

MINNESOTA

Cerebrospinal meningitis	6
Chicken pox	158

[2] Week ended Friday.

MINNESOTA—continued

	Cases
Diphtheria	40
Influenza	1
Measles	283
Pneumonia	3
Scarlet fever	282
Smallpox	1
Tuberculosis	36
Typhoid fever	4
Whooping cough	8

MISSISSIPPI

Diphtheria	4
Scarlet fever	11
Smallpox	12
Typhoid fever	6

MISSOURI

Chicken pox	82
Diphtheria	40
Epidemic sore throat	10
Measles	193
Mumps	64
Ophthalmia neonatorum	1
Pneumonia	9
Poliomyelitis	2
Scarlet fever	143
Smallpox	16
Tuberculosis	59
Typhoid fever	2
Whooping cough	41

MONTANA

Cerebrospinal meningitis	6
Diphtheria	13
Measles	66
Mumps	37
Scarlet fever	144
Smallpox	24
Typhoid fever	1
Whooping cough	53

NEBRASKA

Chicken pox	80
Diphtheria	6
German measles	106
Influenza	27
Measles	215
Mumps	56
Pneumonia	5
Scarlet fever	49
Septic sore throat	11
Smallpox	55
Tuberculosis	1
Typhoid fever	2
Whooping cough	27

NEW JERSEY

Chicken pox	331
Diphtheria	123
Influenza	36
Measles	54
Pneumonia	189
Scarlet fever	396
Typhoid fever	3
Whooping cough	272

NEW MEXICO

	Cases
Chicken pox	52
Conjunctivitis	1
Diphtheria	4
German measles	57
Influenza	2
Measles	48
Mumps	22
Pneumonia	3
Scarlet fever	17
Septicemia	3
Smallpox	7
Tuberculosis	20
Typhoid fever	1
Whooping cough	1

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	539
Diphtheria	64
German measles	329
Lethargic encephalitis	1
Measles	830
Mumps	476
Ophthalmia neonatorum	1
Pneumonia	342
Scarlet fever	420
Septic sore throat	11
Smallpox	10
Tetanus	1
Trachoma	2
Typhoid fever	8
Vincent's angina	30
Whooping cough	321

NORTH CAROLINA

	Cases
Chicken pox	166
Diphtheria	30
German measles	19
Measles	160
Scarlet fever	21
Smallpox	48
Typhoid fever	12
Whooping cough	604

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis.	
Kay County	1
Muskogee County	2
Osage County	1
Pottawatomie County	1
Chicken pox	51
Diphtheria	34
Influenza	[1] 214
Malaria	[1] 18
Measles	357
Mumps	27
Pneumonia	[1] 122
Poliomyelitis—Hughes County	1
Scarlet fever	55
Smallpox	55
Typhoid fever	14
Whooping cough	14

[1] Includes delayed reports.

OREGON

	Cases
Cerebrospinal meningitis	3
Chicken pox	45
Diphtheria	10
Influenza	270
Measles	85
Mumps	12
Pneumonia	[3] 7
Scarlet fever	73
Septic sore throat	2
Smallpox	25
Tuberculosis	7
Typhoid fever	2
Whooping cough	8

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Harrisburg	1
Chicken pox	919
Diphtheria	187
German measles	127
Impetigo contagiosa	10
Lethargic encephalitis	1
Measles	1,014
Mumps	379
Pneumonia	236
Scabies	7
Scarlet fever	650
Trachoma	2
Tuberculosis	111
Typhoid fever	20
Whooping cough	305

RHODE ISLAND

	Cases
Chicken pox	6
Diphtheria	10
German measles	1
Measles	3
Mumps	7
Pneumonia	2
Scarlet fever	23
Tuberculosis	5
Whooping cough	4

SOUTH CAROLINA

	Cases
Chicken pox	127
Diphtheria	11
Hookworm disease	36
Influenza	979
Malaria	87
Measles	121
Mumps	3
Pellagra	30
Scarlet fever	8
Smallpox	15
Tuberculosis	42
Typhoid fever	4
Whooping cough	63

SOUTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	23
Diphtheria	4
Influenza	17
Measles	477
Mumps	9
Pneumonia	21

[3] Deaths.

SOUTH DAKOTA—Continued

	Cases
Poliomyelitis	1
Scarlet fever	153
Smallpox	6
Tuberculosis	2
Typhoid fever	2
Whooping cough	19

TENNESSEE

	Cases
Cerebrospinal meningitis—Nashville	1
Chicken pox	76
Diphtheria	14
Influenza	47
Malaria	5
Measles	221
Mumps	13
Ophthalmia neonatorum	1
Pellagra	1
Pneumonia	52
Rabies	1
Scarlet fever	46
Smallpox	24
Trachoma	1
Tuberculosis	42
Typhoid fever	14
Whooping cough	91

TEXAS

	Cases
Cerebrospinal meningitis	1
Chicken pox	190
Diphtheria	40
Dysentery	2
Influenza	71
Measles	146
Mumps	72
Pellagra	4
Pneumonia	11
Scarlet fever	57
Smallpox	128
Trachoma	1
Tuberculosis	30
Typhoid fever	1
Whooping cough	29

UTAH

	Cases
Chicken pox	25
Diphtheria	11
Influenza	8
Measles	209
Mumps	14
Pneumonia	11
Scarlet fever	12
Smallpox	1
Whooping cough	18

VERMONT

	Cases
Chicken pox	26
Diphtheria	4
Measles	37
Mumps	63
Scarlet fever	10
Typhoid fever	3
Whooping cough	13

WASHINGTON

	Cases
Cerebrospinal meningitis	3
Chicken pox	105
Diphtheria	9
German measles	260
Influenza	8
Measles	198
Mumps	108
Pneumonia	5
Scarlet fever	116
Smallpox	43
Tuberculosis	10
Typhoid fever	4
Whooping cough	23

WEST VIRGINIA

	Cases
Chicken pox	94
Diphtheria	23
Influenza	86
Measles	174
Scarlet fever	53
Smallpox	39
Tuberculosis	12
Typhoid fever	28
Whooping cough	118

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	96
Diphtheria	26
German measles	2
Measles	50
Mumps	73
Pneumonia	24
Scarlet fever	48
Typhoid fever	1
Whooping cough	35
Scattering:	
Chicken pox	216
Diphtheria	24
German measles	31
Influenza	46
Measles	570
Mumps	269
Pneumonia	14
Poliomyelitis	1
Scarlet fever	177
Smallpox	4
Tuberculosis	23
Typhoid fever	4
Whooping cough	116

WYOMING

	Cases
Chicken pox	1
Diphtheria	3
German measles	47
Influenza	1
Measles	44
Mumps	1
Scarlet fever	45
Typhoid fever	1

Reports for Week Ended February 26, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	62
Diphtheria	25
Influenza	7
Measles	7
Pneumonia	71
Scarlet fever	17
Tuberculosis	29
Typhoid fever	1
Whooping cough	20

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	18
Diphtheria	1
German measles	3
Measles	149
Pneumonia	6
Scarlet fever	128
Tuberculosis	6
Typhoid fever	1
Whooping cough	12

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January, 1927										
Idaho	6	18	4		1,115		0	284	51	5
Indiana	2	349	446		692		1	1,108	729	12
Kansas	10	100	38	2	1,155		3	802	220	11
Mississippi	1	97	4,591	1,990	1,306	217	1	104	120	60
Montana	19	19	19		435		0	514	41	3
New York	27	1,448			3,594		15	2,997	55	122
Oregon	9	74	332		277		0	316	167	29
Pennsylvania	6	928			3,452		4	2,477	0	92
South Carolina	0	110	4,672	560	284	116	11	70	69	53
Virginia	5	250	4,343	60	1,032	1	1	351	229	47
Washington	24	123	44		1,157		1	572	252	28
Wyoming	9	18	10		681		0	142	0	

January, 1927

	Cases
Anthrax:	
New York	1
Pennsylvania	1
Chicken pox:	
Idaho	146
Indiana	818
Kansas	863
Mississippi	935
Montana	102
New York	3,593
Oregon	278
Pennsylvania	3,873
South Carolina	515
Virginia	1,044
Washington	560
Wyoming	42
Conjunctivitis (epidemic):	
Idaho	2
Dengue:	
Mississippi	13
South Carolina	11
Dysentery:	
New York	6
Virginia	41
Dysentery (amebic):	
Mississippi	31
Dysentery (Bacillary):	
Mississippi	200
German measles:	
Kansas	26
Montana	5
New York	513
Pennsylvania	178
Washington	193
Wyoming	89
Hookworm disease:	
Mississippi	237
South Carolina	105
Virginia	5
Impetigo contagiosa:	
Oregon	28
Pennsylvania	66
Wyoming	1
Lethargic encephalitis:	
Kansas	2
New York	26
Washington	3
Meningitis (tubercular):	
Mississippi	5
Meningitis (other forms):	
Mississippi	6
Mumps:	
Idaho	59
Indiana	2
Kansas	115
Mississippi	521

Mumps—Continued.	Cases
Montana	81
New York	2,478
Oregon	107
Pennsylvania	1,008
Washington	265
Wyoming	79
Ophthalmia neonatorum:	
Mississippi	10
New York	1
Pennsylvania	7
Paratyphoid fever:	
New York	2
Oregon	1
South Carolina	5
Washington	2
Wyoming	3
Puerperal septicemia:	
Mississippi	44
New York	11
Rabies in animals:	
Idaho	2
Mississippi	53
Oregon	1
South Carolina	23
Rabies in man:	
Mississippi	1
Scabies.	
Oregon	6
Pennsylvania	30
Septic sore throat:	
Idaho	2
Kansas	7

Septic sore throat—Continued.	Cases
Montana	3
New York	31
Oregon	13
Wyoming	1
Tetanus:	
Kansas	4
New York	1
Pennsylvania	7
Trachoma:	
Mississippi	6
Pennsylvania	2
Washington	6
Tularaemia:	
Wyoming	3
Typhus fever:	
New York	1
Vincent's angina:	
New York	62
Whooping cough:	
Idaho	19
Indiana	261
Kansas	198
Mississippi	1,361
Montana	11
New York	1,411
Oregon	26
Pennsylvania	1,399
South Carolina	313
Virginia	1,562
Washington	84
Wyoming	22

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,790,000. The estimated population of the 91 cities reporting deaths is more than 29,520,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 19, 1927, February 20, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	1,435	2,072	
99 cities	794	1,206	1,000
Measles:			
38 States	20,742	13,788	
99 cities	11,628	4,612	
Poliomyelitis:			
40 States	14	16	
Scarlet fever:			
41 States	4,538	6,321	
99 cities	1,801	2,589	1,324
Smallpox:			
41 States	991	907	
99 cities	236	154	136
Typhoid fever:			
41 States	211	254	
99 cities	38	54	43
Deaths reported			
Influenza and pneumonia:			
91 cities	1,740	958	

City reports for week ended February 19, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	20	1	0	0	0	2	0	2
New Hampshire:									
Concord	22,546	0	0	1	0		25	0	0
Manchester	83,097	0	3	0	0	0	0	0	3
Vermont:									
Barre	10,008	0	0	0	0	0	7	0	0
Burlington	24,089	3	1	0	0	0	0	1	0
Massachusetts:									
Boston	779,620	77	60	34	5	0	35	117	15
Fall River	128,993	7	5	2	1	1	1	0	3
Springfield	142,065	16	2	2	1	1	1	2	1
Worcester	190,757	4	4	3	0	0	0	3	7
Rhode Island:									
Pawtucket	69,760	1	1	0	0	0	1	0	4
Providence	267,918	0	10	5	0	1	1	0	7
Connecticut:									
Bridgeport	(1)	3	9	8	0	1	4	2	2
Hartford	160,197	10	9	2	0	0	1	2	0
New Haven	178,927	37	3	0	0	0	0	1	3
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	33	14	19		3	3	14	16
New York	5,873,356	362	192	401	140	25	35	580	185
Rochester	316,786	7	10	8		1	4	1	7
Syracuse	182,003	24	6	1		0	6	6	5
New Jersey:									
Camden	128,642	5	5	23	1	0	1	1	5
Newark	452,513	48	21	18	24	1	13	52	11
Trenton	132,020	2	5	1	0	1	1	1	3
Pennsylvania:									
Philadelphia	1,979,364	125	78	67		14	11	98	52
Pittsburgh	631,563	71	21	22		5	63	6	16
Reading	112,707	6	3	2		0	2	29	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	22	9	7	1	5	1	32	13
Cleveland	936,485	84	32	53	5	1	4	22	25
Columbus	279,836	23	4	9	0	0	2	1	8
Toledo	287,380	44	7	4	5	4	21	4	8
Indiana:									
Fort Wayne	97,846	5	3	1	0	0	49	0	3
Indianapolis	358,819	42	9	7	0	0	3	13	8
South Bend	80,091	5	1	0	0	0	30	0	1
Terre Haute	71,071	6	2	0	0	1	8	0	1
Illinois:									
Chicago	2,995,239	111	94	85	20	11	979	116	55
Peoria	81,564	6	1	2	0	0	62	13	0
Springfield	63,923	11	1	1	1	2	178	0	0
Michigan:									
Detroit	1,245,824	102	60	51	3	3	5	66	48
Flint	130,316	27	5	2	0	1	5	0	4
Grand Rapids	153,698	4	3	1	2	1	0	0	2

[1] No estimate made.

City reports for week ended February 19, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	5	2	0	0	0	168	39	2
Madison	46,385	16	0	1	0	0	0	2	0
Milwaukee	509,192	98	17	34	3	2	56	65	9
Racine	67,707	17	2	1	0	2	14	33	0
Superior	39,671	1	0	0	0	0	12	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	4	1	0	0	0	42	0	3
Minneapolis	425,435	71	17	14	0	3	4	0	8
St. Paul	246,001	29	14	9	0	2	4	0	9
Iowa:									
Davenport	52,469	2	1	1	0	--------	15	0	--------
Des Moines	141,441	4	3	0	0	--------	0	3	--------
Sioux City	76,411	19	2	0	0	--------	26	0	--------
Waterloo	36,771	7	0	1	0	--------	64	3	--------
Missouri:									
Kansas City	367,481	40	8	5	2	5	60	6	10
St. Joseph	78,342	0	2	1	0	0	2	0	4
St. Louis	821,543	33	49	51	1	1	18	65	--------
North Dakota:									
Fargo	26,403	5	1	0	0	0	8	6	0
Grand Forks	14,811	0	1	0	0	--------	1	0	--------
South Dakota:									
Aberdeen	15,036	15	1	0	0	--------	37	1	--------
Sioux Falls	30,127	2	0	0	0	--------	1	0	--------
Nebraska:									
Lincoln	60,941	13	1	2	0	0	29	1	1
Omaha	211,768	16	5	2	0	0	45	20	7
Kansas:									
Topeka	55,411	7	2	0	0	0	12	1	2
Wichita	88,367	25	4	0	0	0	0	0	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	2	0	0	2	0	0	5
Maryland:									
Baltimore	796,296	107	29	41	108	4	3	13	50
Cumberland	33,741	2	1	0	0	0	0	0	2
Frederick	12,035	0	1	0	0	0	0	1	1
District of Columbia:									
Washington	497,906	42	18	43	24	1	1	0	24
Virginia:									
Lynchburg	30,395	12	1	3	0	0	6	1	4
Norfolk	(1)	6	1	2	1	0	74	2	4
Richmond	186,403	3	4	4	0	1	204	4	10
Roanoke	58,208	2	1	1	0	0	1	0	2
West Virginia:									
Charleston	49,019	27	1	0	2	1	0	0	1
Wheeling	56,208	9	1	0	0	0	5	0	0
North Carolina:									
Raleigh	30,371	19	1	1	0	0	2	0	3
Wilmington	37,061	2	0	1	0	0	0	7	0
Winston-Salem	69,031	6	1	0	0	1	0	17	1
South Carolina:									
Charleston	73,125	4	0	0	52	0	3	0	4
Columbia	41,225	2	1	0	0	--------	0	5	--------
Greenville	27,311	3	0	1	0	0	0	0	1
Georgia:									
Atlanta	(1)	8	3	8	60	6	69	31	7
Brunswick	16,809	0	0	1	0	0	1	2	0
Savannah	93,134	4	1	0	7	1	1	0	5
Florida:									
Miami	69,754	22	2	1	0	0	1	6	3
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	[illegible]
Tampa	94,743	3	3	0	0	0	69	[illegible]	[illegible]

[1]No estimate made.

City reports for week ended February 19, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	1	1	3	0	0	0	0	2
Louisville	305,935	7	6	3	1	0	3	1	6
Tennessee:									
Memphis	174,533	36	3	0	0	1	4	0	12
Nashville	136,220	5	1	1	0	0	0	0	8
Alabama:									
Birmingham	205,670	16	2	8	11	7	36	1	5
Mobile	65,955	6	1	1	0	0	41	0	0
Montgomery	46,481	1	1	1	0	0	8	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	4	0	0	0	--------	5	13	2
Little Rock	74,216	1	0	0	0	1	0	0	0
Louisiana:									
New Orleans	414,493	1	12	14	4	4	123	0	22
Shreveport	57,857	3	0	1	0	0	1	2	2
Oklahoma:									
Oklahoma City	(1)	0	1	0	11	1	0	0	3
Texas:									
Dallas	194,450	12	6	13	1	1	6	2	9
Galveston	48,375	0	1	2	0	0	0	1	2
Houston	164,954	0	3	3	0	0	0	1	7
San Antonio	198,069	1	2	8	0	3	1	0	6
MOUNTAIN									
Montana:									
Billings	17,971	0	1	1	0	0	5	0	2
Great Falls	29,883	6	1	0	0	0	11	0	0
Helena	12,037	2	0	0	0	0	0	0	1
Missoula	12,668	2	0	1	0	0	0	11	0
Idaho:									
Boise	23,042	0	0	2	0	0	17	1	0
Colorado:									
Denver	280,911	21	11	4	--------	3	950	1	11
Pueblo	43,787	20	1	3	0	0	4	0	2
New Mexico:									
Albuquerque	21,000	3	0	0	0	0	101	25	4
Arizona:									
Phoenix	38,669	1	0	1	0	0	0	1	6
Utah:									
Salt Lake City	130,948	17	3	7	0	0	91	1	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	1
PACIFIC									
Washington:									
Seattle	(1)	39	7	6	0	--------	18	68	--------
Spokane	108,897	6	4	0	0	--------	49	0	--------
Tacoma	104,455	14	2	3	0	0	31	2	6
Oregon:									
Portland	282,383	9	8	2	74	4	61	2	14
California:									
Los Angeles	(1)	101	36	48	31	1	722	16	37
Sacramento	72,260	6	2	0	1	0	102	10	2
San Francisco	557,530	36	21	15	9	4	140	84	6

[1] No estimate made.

City reports for week ended February 19, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	1	0	0	0	0	1	0	0	14	19
New Hampshire:											
Concord	1	2	0	0	0	0	0	0	0	0	5
Manchester	3	3	0	0	0	0	1	0	0	0	18
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	4
Burlington	1	1	0	0	0	0	0	1	0	2	3
Massachusetts:											
Boston	67	132	0	0	0	17	2	0	0	28	242
Fall River	3	4	0	0	0	1	0	1	0	4	37
Springfield	8	3	0	0	0	2	0	0	0	2	38
Worcester	9	16	0	0	0	2	0	0	0	3	50
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	18
Providence	8	15	0	0	0	3	0	0	0	4	70
Connecticut:											
Bridgeport	9	20	0	0	0	1	0	0	0	0	28
Hartford	8	4	0	0	0	0	0	0	0	4	45
New Haven	11	4	0	0	0	0	0	0	0	0	40
MIDDLE ATLANTIC											
New York:											
Buffalo	24	39	0	0	0	7	1	1	1	8	158
New York	248	852	0	0	0	[1] 106	7	12	0	113	1,507
Rochester	13	33	0	0	0	3	0	0	0	11	86
Syracuse	17	7	0	0	0	2	1	5	0	5	61
New Jersey:											
Camden	5	8	0	0	0	0	1	0	0	1	39
Newark	26	63	0	0	0	6	1	1	1	58	114
Trenton	5	1	0	0	0	1	0	0	0	6	35
Pennsylvania:											
Philadelphia	83	139	0	0	0	37	2	0	0	24	520
Pittsburgh	38	29	1	0	0	6	0	1	0	8	167
Reading	2	9	0	0	0	0	0	0	0	1	25
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	32	1	1	0	13	0	0	0	1	155
Cleveland	45	62	1	0	0	15	1	1	0	47	193
Columbus	12	8	2	1	0	9	0	0	0	10	87
Toledo	14	8	2	0	0	3	0	0	0	53	73
Indiana:											
Fort Wayne	5	8	0	4	0	2	0	0	0	0	23
Indianapolis	10	25	12	27	0	2	0	0	1	10	92
South Bend	2	2	1	0	0	1	0	0	0	0	14
Terre Haute	2	0	0	0	0	0	0	0	0	0	19
Illinois:											
Chicago	140	130	3	2	0	47	3	4	2	72	690
Peoria	5	7	0	0	0	2	0	0	0	2	23
Springfield	2	6	0	0	0	0	1	0	0	1	26
Michigan:											
Detroit	95	102	3	0	0	21	1	0	1	71	324
Flint	7	33	1	7	0	0	1	1	0	5	19
Grand Rapids	10	15	1	0	0	1	0	0	0	8	39
Wisconsin:											
Kenosha	2	10	1	0	0	1	0	0	0	5	7
Madison	3	10	0	0	0	0	0	0	0	5	9
Milwaukee	27	37	2	0	0	7	0	0	0	48	105
Racine	5	4	0	0	0	0	0	0	0	15	17
Superior	3	9	3	0	0	0	0	0	0	0	[illegible]

[1] Pulmonary tuberculosis only.

City reports for week ended February 19, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	7	0	0	0	1	0	1	0	0	23
Minneapolis	52	69	11	1	0	3	0	0	0	2	92
St. Paul	34	55	6	5	0	6	1	1	0	2	67
Iowa:											
Davenport	2	2	2	2	-------	-------	0	0	-------	0	-------
Des Moines	7	11	2	0	-------	-------	0	0	-------	0	-------
Sioux City	2	5	2	1	-------	-------	0	0	-------	1	-------
Waterloo	2	0	1	0	-------	-------	0	0	-------	0	-------
Missouri:											
Kansas City	13	41	2	12	0	14	0	0	0	4	126
St. Joseph	3	3	0	0	0	0	0	0	0	0	23
St. Louis	32	49	4	3	0	16	1	2	1	27	210
North Dakota:											
Fargo	2	11	0	0	0	0	0	0	0	2	6
Grand Forks	0	6	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	2	11	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	3	4	1	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Lincoln	3	10	0	0	0	0	0	1	0	0	14
Omaha	6	18	10	1	0	5	0	0	0	0	62
Kansas:											
Topeka	2	7	1	18	0	1	0	0	0	18	10
Wichita	3	8	1	0	0	1	0	1	0	2	31
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	43	0	0	0	0	0	0	0	6	35
Maryland:											
Baltimore	44	33	0	0	0	23	2	7	0	57	266
Cumberland	0	2	0	0	0	0	0	0	0	0	13
Frederick	0	1	0	0	0	0	0	0	0	0	7
District of Columbia:											
Washington	25	19	2	0	0	15	1	0	0	21	171
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	0	13
Norfolk	2	7	0	0	0	1	0	0	0	24	-------
Richmond	4	3	0	0	0	2	0	0	0	10	54
Roanoke	0	0	0	0	0	0	0	0	0	3	22
West Virginia:											
Charleston	1	5	0	1	0	2	0	0	0	4	14
Wheeling	2	6	0	0	0	1	0	0	0	3	18
North Carolina:											
Raleigh	0	2	0	0	0	2	0	0	0	37	18
Wilmington	0	4	0	0	0	0	1	0	0	19	7
Winston-Salem	0	2	4	0	0	3	0	0	0	65	20
South Carolina:											
Charleston	1	3	0	0	0	5	0	1	1	0	28
Columbia	0	0	0	1	-------	-------	0	0	-------	10	-------
Greenville	0	1	1	0	0	0	0	0	0	3	6
Georgia:											
Atlanta	4	5	3	27	0	5	0	1	1	5	78
Brunswick	0	0	0	0	0	1	0	0	0	0	10
Savannah	1	1	0	3	0	2	0	1	0	1	31
Florida:											
Miami	1	3	-------	0	0	2	1	1	0	6	41
St. Petersburg	0	-------	0	-------	0	1	0	-------	0	-------	17
Tampa	0	1	1	1	0	4	1	3	1	0	34

City reports for week ended February 19, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	3	0	0	0	1	1	0	0	0	--------
Louisville	5	19	0	2	0	6	1	1	0	85	98
Tennessee:											
Memphis	4	21	2	14	0	3	0	1	0	14	55
Nashville	4	2	1	0	0	3	0	1	0	1	55
Alabama:											
Birmingham	2	2	7	7	0	3	1	2	0	7	64
Mobile	0	0	1	0	0	0	0	0	0	0	16
Montgomery	1	1	1	3	0	0	0	1	0	2	15
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	2	1	0	--------	2	0	0	--------	4	8
Little Rock	1	2	0	0	0	3	0	1	0	3	--------
Louisiana:											
New Orleans	6	2	2	0	0	13	2	1	0	7	151
Shreveport	0	0	2	0	0	0	0	0	0	0	22
Oklahoma:											
Oklahoma City	2	2	3	4	0	0	0	0	0	0	24
Texas:											
Dallas	2	7	3	5	0	3	0	0	0	0	60
Galveston	0	1	1	0	0	3	1	0	0	0	11
Houston	1	0	2	8	0	2	1	0	0	0	61
San Antonio	1	2	0	2	0	6	0	0	0	0	54
MOUNTAIN											
Montana:											
Billings	1	2	1	2	0	0	0	0	0	0	9
Great Falls	2	10	2	0	0	2	0	0	0	0	9
Helena	1	0	0	0	0	0	0	0	0	0	7
Missoula	0	11	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	1	4	1	1	0	0	0	0	0	0	5
Colorado:											
Denver	14	93	3	0	0	12	1	0	0	0	95
Pueblo	1	5	0	0	0	2	1	0	0	0	16
New Mexico:											
Albuquerque	2	8	0	0	0	6	0	0	0	1	21
Arizona:											
Phoenix	1	6	0	0	0	13	0	1	1	0	39
Utah:											
Salt Lake City	3	14	2	0	0	0	1	0	0	9	47
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	6
PACIFIC											
Washington:											
Seattle	11	12	4	1	--------	--------	0	1	--------	10	--------
Spokane	4	32	6	7	--------	--------	0	0	--------	2	--------
Tacoma	3	13	3	24	0	0	0	0	0	3	27
Oregon:											
Portland	6	15	10	0	0	1	0	1	0	1	102
California:											
Los Angeles	26	41	8	0	0	27	2	0	0	7	295
Sacramento	1	2	1	4	0	2	0	0	0	0	36
San Francisco	15	30	5	0	0	10	1	0	0	10	178

City reports for week ended February 19, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York [1]	2	3	5	2	0	0	0	1	0
New Jersey:									
Newark	1	0	2	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	1	0	0	0	1	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	2	0	0	0	0	0	0	0
Cleveland	0	0	0	0	0	0	0	1	0
Columbus	0	0	0	2	0	0	0	0	0
Illinois:									
Chicago	0	0	2	0	0	0	1	0	0
Springfield	1	1	0	0	0	0	0	0	0
Michigan:									
Detroit	1	0	0	0	0	0	1	1	0
Wisconsin:									
Milwaukee	2	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	2	0	0	0	0	0	0	0
Minneapolis	1	1	0	0	0	0	0	0	0
St. Paul	0	0	1	0	0	0	0	0	0
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	0	0	1	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	0	0	2	0	0	0
Nashville	2	2	1	1	0	0	0	0	0
Alabama:									
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	1	0	1	1	2	2	0	1	0
MOUNTAIN									
Montana:									
Missoula	1	0	0	0	0	0	0	0	0
Colorado:									
Pueblo	3	2	0	0	0	0	0	0	0
Utah:									
Salt Lake City	1	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	3	--------	0	--------	0	--------	0	0	--------
Tacoma	1	0	0	0	0	0	0	1	0
Oregon:									
Portland	0	1	0	2	0	0	0	0	0
California:									
Los Angeles	3	5	0	0	0	0	0	0	0
Sacramento	1	1	0	0	0	0	0	0	0
San Francisco	0	0	1	1	0	0	0	1	0

[1] Typhus fever: 1 case and 1 death at New York, N. Y.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended February 19, 1927, compared with those for a like period ended February 20, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, January 16 to February 19, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927
101 cities	142	176	142	178	134	195	[2] 136	[3] 177	137	[4] 204
New England	132	151	118	163	97	146	123	[3] 168	116	132
Middle Atlantic	138	192	130	194	129	229	141	188	132	277
East North Central	131	170	138	175	119	202	[2] 132	179	134	169
West North Central	210	147	250	127	222	123	171	155	206	[5] 168
South Atlantic	151	161	115	199	132	143	134	223	104	192
East South Central	72	153	41	102	41	127	47	61	57	87
West South Central	155	172	142	206	137	235	116	151	90	172
Mountain	155	117	264	198	128	189	173	153	219	162
Pacific	139	233	166	168	188	217	139	168	204	[6] 191

MEASLES CASE RATES

	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927
101 cities	1,336	445	1,385	417	1,481	560	[2] 1,719	[3] 645	1,995	[4] 781
New England	2,566	548	2,745	323	2,403	378	2,342	[3] 364	2,703	181
Middle Atlantic	1,090	49	1,187	46	1,350	41	1,514	45	1,917	69
East North Central	2,071	516	2,091	500	2,155	647	[2] 2,637	738	2,933	899
West North Central	153	278	280	298	395	455	551	685	676	[5] 554
South Atlantic	2,457	303	2,261	257	2,557	538	3,086	361	3,248	795
East South Central	284	204	393	188	708	270	729	453	957	469
West South Central	13	453	26	382	34	570	13	457	9	570
Mountain	118	5,088	100	4,459	91	7,237	109	7,866	137	9,691
Pacific	64	1,346	72	1,508	104	1,542	166	2,225	201	[6] 2,853

SCARLET FEVER CASE RATES

	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927
101 cities	292	383	287	386	298	402	[2] 298	[3] 391	309	[4] 438
New England	300	536	377	539	401	508	361	[3] 544	361	469
Middle Atlantic	237	369	235	379	209	434	197	424	208	582
East North Central	325	330	300	342	338	319	[2] 359	327	372	323
West North Central	678	518	666	488	754	522	782	500	782	[5] 540
South Atlantic	184	281	153	254	162	246	169	259	149	250
East South Central	202	336	109	321	119	245	114	224	243	245
West South Central	69	197	69	113	137	126	107	75	107	67
Mountain	374	1,349	255	1,609	155	1,519	219	1,250	237	1,250
Pacific	254	319	332	327	324	437	308	390	330	[6] 324

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.

[2] Madison, Wis., not included.

[3] Worcester, Mass., not included.

[4] Topeka, Kans., and Tacoma, Wash., not included.

[5] Topeka, Kans., not included.

[6] Tacoma, Wash., not included.

Summary of weekly reports from cities, January 16 to February 19, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 23, 1926	Jan. 22, 1927	Jan. 30, 1926	Jan 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927
101 cities	35	20	40	26	47	25	[2] 53	[3] 26	41	[4] 26
New England	0	0	0	0	0	0	0	[3] 0	0	0
Middle Atlantic	0	1	1	0	0	0	1	0	0	0
East North Central	33	17	43	17	16	22	[2] 23	15	33	28
West North Central	34	60	54	79	52	54	32	71	65	[5] 47
South Atlantic	56	34	58	60	101	43	80	63	50	60
East South Central	47	25	21	87	41	102	52	82	103	132
West South Central	99	63	125	42	155	80	112	67	142	63
Mountain	27	0	18	9	73	9	73	18	36	27
Pacific	193	63	204	71	321	63	458	76	193	[6] 33

TYPHOID FEVER CASE RATES

101 cities	9	7	8	7	7	7	[2] 6	[3] 7	7	[4] 9
New England	9	2	9	5	14	9	5	[3] 5	7	2
Middle Atlantic	10	5	9	4	3	9	6	5	4	10
East North Central	3	6	4	2	3	5	[2] 4	2	5	4
West North Central	4	4	2	8	6	4	4	6	6	[5] 10
South Atlantic	7	7	9	18	13	5	15	18	4	24
East South Central	5	10	10	36	21	5	10	10	5	31
West South Central	47	4	17	0	4	17	0	13	21	8
Mountain	0	27	18	18	36	0	0	0	18	0
Pacific	16	21	11	21	16	8	13	18	16	[6] 3

INFLUENZA DEATH RATES

95 cities	20	21	29	25	34	19	[2] 33	[3] 24	50	[7] 23
New England	7	5	17	9	12	5	19	[3] 3	2	[8] 10
Middle Atlantic	14	20	18	22	20	21	15	28	27	25
East North Central	8	25	12	21	12	9	[2] 11	22	11	[9] 17
West North Central	11	4	13	4	19	12	4	15	19	[5] 23
South Atlantic	40	20	36	50	68	28	64	24	138	31
East South Central	57	15	72	31	103	56	62	36	160	41
West South Central	88	43	141	73	168	65	282	39	278	39
Mountain	18	54	73	72	109	45	128	72	109	27
Pacific	39	31	78	14	67	7	35	21	95	[6] 19

PNEUMONIA DEATH RATES

95 cities	199	183	201	159	206	168	[2] 212	[3] 147	259	[7] 146
New England	210	207	144	158	200	188	156	[3] 155	175	[8] 104
Middle Atlantic	228	197	218	174	213	197	212	174	290	149
East North Central	139	138	166	132	145	122	[2] 161	128	181	[9] 117
West North Central	82	116	110	127	125	135	78	96	127	[5] 89
South Atlantic	289	283	286	193	346	226	408	171	490	239
East South Central	228	245	207	204	248	199	222	112	295	168
West South Central	291	202	415	202	362	151	516	146	516	207
Mountain	273	216	164	171	228	144	328	144	173	189
Pacific	184	134	173	107	184	121	110	114	173	[6] 167

[2] Madison, Wis., not included.
[3] Worcester, Mass., not included.
[4] Topeka, Kans., and Tacoma, Wash., not included.
[5] Topeka, Kans., not included.
[6] Tacoma, Wash., not included.
[7] New Haven, Conn., Cincinnati, Ohio, Topeka, Kans., and Tacoma, Wash., not included.
[8] New Haven, Conn., not included.
[9] Cincinnati, Ohio, not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended February 12, 1927.—The following report for the week ended February 12, 1927, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	1	1	0	0	0	0
British India:						
Karachi	----------	0	----------	0	----------	1
Bombay	----------	2	----------	0	38	18
Madras	----------	0	----------	0	33	0
Calcutta	----------	0	----------	2	153	102
Rangoon	----------	4	----------	8	46	2
Negapatam	----------	0	----------	3	4	4
Straits Settlements: Singapore	0	0	1	0	0	0
Dutch East Indies: Surabaya	4	4	0	0	0	0
Siam: Bangkok	0	0	7	3	0	0
French Indo-China:						
Saigon	0	0	0	0	1	0
Turane	0	0	----------	1	0	0
Hongkong	0	0	0	0	4	3
U. S. S. R.: Vladivostok	0	0	0	0	12	----------
Manchuria: Mukden	0	0	0	0	2	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Samarinda, Macassar, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Padang, Palembang, Tarakan, Samarinda.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow, Changchun.

Kwantung.—Port Arthur, Dairen.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptain Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—St. Denis.
Mauritius.—Port Louis.

Reports had not been received in time for distribution from—

Madagascar.—Tamatave, Majunga.
Dutch East Indies.—Balikpapan.

Other epidemiological information received by the Singapore bureau:

Singapore: S/S *Mundra* arrived on February 13 from Calcutta infected with smallpox.

Belated information

Week ended January 29—

Pondicherry.—Cholera, 1 case.

INFLUENZA IN FOREIGN COUNTRIES

The health section of the secretariat of the League of Nations has published the following information relative to the prevalence of influenza in foreign countries. The data were obtained from the health administrations of the several countries. (See Public Health Reports, March 4, 1927, p. 646.)

Czechoslovakia.—(February 11.) The returns for the week ended February 5 showed a lower incidence of influenza than those for the previous week. There were 28,601 cases reported in Bohemia, as compared with 34,887 during the previous week. There were 146 deaths, as compared with 94 during the previous week. Cases with complications increased, on the other hand, from 341 to 493. The most frequent complication was broncho-pneumonia, which was reported in 358 cases. The character of the disease is generally more severe in the districts which were affected early during the epidemic than in those affected more recently.

In Moravia, 6,379 cases and 21 deaths were reported, as compared with 6,156 cases and 18 deaths during the previous week. Complications were reported in 68 cases.

In Silesia, 3,246 cases and 10 deaths were reported during the week ended February 5, as compared with 4,325 and 11 deaths during the previous week. Complications were reported in 78 cases.

Denmark.—(February 12.) Twenty-nine thousand six hundred and forty-seven influenza cases were reported during the week ended February 5, as compared with 38,673 cases during the previous week; 4,356 of these cases were notified in Copenhagen, 8,518 in other towns, and 16,773 in the rural districts.

The total number of cases reported during the month of January was 139,733, which is 4,500 more than in January, 1922. The large majority of the cases continue to be very benign.

England and Wales.—(February 15.) Although influenza of mild type is still widely prevalent in the Midlands, particularly in Nottingham, Birmingham, Leeds, Derby, Manchester, and Liverpool, the epidemic generally appears to be abating.

Provisional returns for the week ended February 12 show 159 deaths from influenza in London, as compared with 215 during the previous week, and 759 deaths in 105 large towns, as compared with 818 during the previous week. The pneumonia notifications numbered 266 in London and 3,006 in the whole country, as compared with 423 and 3,198, respectively, during the previous week.

During the week ended February 5, the highest incidence was reported at Bristol, where there were 60 deaths from influenza and where the general death rate was 31.1 per 1,000. The death rate from influenza per million population in the great towns was, during the said week, 71.4 in the South, as compared with 60.3 during the previous week; 62.2 in the Midlands, as compared with 44.2; 49.1 in Wales, as compared with 51.6; 46.7 in London, as compared with 54.8, and 16.3 in the North, as compared with 13.9 during the previous week.

French Indo-China.—Reports from the various Provinces show very little prevalence of influenza.

Germany.—Statistics of causes of death in 46 German towns showed an increase of deaths attributed to influenza from 261 during the week ended January 15 to 377 during the week ended January 22. The highest weekly number of deaths due to influenza in German towns was 1,024 in 1922 (first week of January), 344 in 1923 (second week of January), and 216 in 1924 (last week of March). Influenza was little in evidence in 1925 and 1926.

There was no corresponding increase of the deaths attributed to diseases of the respiratory system, nor of the general mortality. The general death rate was 13.5 per 1,000 during the week ended January 22, which is normal for the season. The highest mortality was reported at Stuttgart, where the death rate was 19.4 per 1,000, and where 35 deaths were ascribed to influenza.

Greece.—(February 13.) The influenza epidemic continues in mild form. The number of cases is diminishing, except in the departments of Evrou, Rodope, Arta, and Zante, where there is a slight increase.

Hungary.—(February 16.) The influenza epidemic has decreased materially and has come to an end in certain localities; 143 cases were reported in the army during the week ended February 12, as compared with 701 during the previous week; 259 influenza cases with complications and 10 deaths were reported at Budapest during the said week. There were 143 deaths from influenza reported in the whole country.

India.—Reports for the Provinces and presidencies showed no evidence of the prevalence of influenza.

Italy.—(February 11). The influenza manifestations of entirely benign character, which are occurring in a very few localities, have not influenced the health conditions, which remain perfectly normal. Influenza centers have hitherto shown no tendency to spread. The general mortality and deaths from diseases of the respiratory system do not exceed the average for the season. The number of admissions to hospitals is not higher than during the corresponding period of last year.

Korea.—During the week ended February 5, 46 cases of influenza were reported at Chemulpo, and 18 cases and 5 deaths at Fusan. Thirty-four cases were reported at Chemulpo and 255 at Fusan during the week ended February 12.

Rumania.—(February 15.) The influenza epidemic is extending. There are numerous cases of very mild type characterized by coryza and tracheitis. Cases of pleuro-pulmonary type are fairly numerous. Gastro-intestinal complications are reported at the town of Piteschti. The case mortality has hitherto been very low. There has been no fatal case in the army. The epidemic has shown a tendency to become more serious during the last few days. Twelve deaths were caused by broncho-pneumonic complications at Bucharest during the last two weeks.

Russia (U. S. S. R.).—Reports received from the municipal statistical office of Leningrad showed that the influenza situation remained unchanged there during the first half of January. There were 245 influenza cases and 7 deaths during the week ended January 1, 254 cases and 5 deaths during the week ended January 8, and 274 cases and 7 deaths during the week ended January 15.

Scotland.—(February 14.) The death rate remains normal. The number of influenza deaths in 16 towns during the week ended February 12 was only 19, as compared with 24 during the previous week. The general death rate was 14.7 per 1,000. Returns generally indicate fewer cases or absence of the epidemic, and several of them describe the epidemic as mild but with catarrhal symptoms.

Sweden.—Twenty deaths were attributed to influenza at Stockholm during the week ended January 29, as compared with 6 during the previous week. The number of deaths from all causes was 148, as compared with 116 during the previous week; 809 influenza cases and 6 deaths were reported at Gothenburg during the same week.

Switzerland.—(February 10.) The number of influenza cases reported during the week ended February 6 was 5,109, as compared with 10,003 during the previous week. The diminution has occurred in all cantons and the epidemic may be considered as finished in certain of them. The decrease is very marked even in those recently affected.

Yugoslavia.—Nine thousand three hundred and fifty-nine influenza cases and 21 deaths were reported from January 22 to 31, as compared with 1,652 cases and 9 deaths during the week ended January 21. The majority of the cases (6,363) were, as during the previous week, reported in the department of Zagreb.

LATER INFORMATION

A cablegram dated March 3, 1927, states that influenza was increasing rapidly in Lancashire and Yorkshire, England. During the last week of February there were 1,023 influenza deaths in 105 great English towns. Bulgaria reported 925 deaths from influenza for the third week of February. Influenza of mild type is increasing in Yugoslavia, Lithuania, Sweden, and Finland. The epidemic has terminated in Switzerland, France, Belgium, Netherlands, and Spain. It is decreasing elsewhere.

CANADA

Communicable diseases—Week ended February 19, 1927.—The Canadian ministry of health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended February 19, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	17				2			19
Smallpox				15	2	9	9	35
Typhoid fever			4	10	3		3	20

Vital statistics—Quebec—December, 1926.—Births and deaths in the Province of Quebec for the month of December, 1926, have been reported as follows:

Estimated population	2,570,000
Births	6,437
Birth rate per 1,000 population	30.05
Deaths (all causes)	2,876
Death rate per 1,000 population	13.43
Deaths under 1 year	761
Infant mortality rate	118.22
Deaths from—	
Cancer	142
Cerebrospinal meningitis	9
Diabetes	29
Diphtheria	50
Deaths from—Continued.	
Heart disease	379
Influenza	123
Measles	34
Poliomyelitis	1
Scarlet fever	13
Syphilis	9
Tuberculosis (pulmonary)	183
Tuberculosis (other forms)	55
Typhoid fever	17
Whooping cough	57

CUBA

Typhoid fever inoculation—Santiago de Cuba.—A campaign of inoculation against typhoid fever was stated, under date of February 21, 1927, to have been begun by the local sanitary authorities at Santiago de Cuba.

HAWAII TERRITORY

Rodent operations—Island of Hawaii—January, 1927.—During the month of January, 1927, rodent operations in the island of Hawaii were reported as follows:

Rodents exterminated	13,012
Rodents examined	11,716
Rodents found plague infected	0
Human plague	0

Last case of rodent plague, July 24, 1926.
Last case of human plague, October 6, 1926.

MADAGASCAR

Plague—December 1-15, 1926.—During the period December 1 to 31, 1926, 152 cases of plague with 141 deaths were reported in the island of Madagascar, occurring in the Provinces of Itasy, Moramanga, and Tananarive. The largest occurrence was in the Province of Tananarive, with 120 cases and 113 deaths, of which 5 cases with 5 deaths occurred in the interior town of Tananarive. The distribution of occurrence according to type was: Bubonic—cases, 69; pneumonic, 44; septicemic, 39.

MAURITIUS

Plague—November, 1926.—During the month of November, 1926, 14 cases of plague with 12 deaths were reported in the island of Mauritius, of which 1 case with 1 death occurred in the Plaines Wilhems district and 13 cases with 11 deaths in the town of Port Louis.

MEXICO

Piedras Negras—Vaccination.—Under date of February 25, 1927, 68 new cases of smallpox were reported present in the district of Piedras Negras. It was stated that the public health service had ordered vaccination to be carried out.

NETHERLANDS EAST INDIES

Epidemic smallpox—Borneo—December 14, 1926.—Under date of January 4, 1927, epidemic smallpox was reported in two native villages of south and east Borneo, Netherlands East Indies.

TRINIDAD

Mortality—Prevalence of certain diseases—Year 1925.—During the year ended December 31, 1925, 7,888 deaths from all causes were reported in the island of Trinidad, including 1,708 deaths of infants under 1 year of age. Population, estimated, 383,422.

Prevalence of certain diseases—Malaria—Tuberculosis—Typhoid fever.—The principal cause of deaths during the period under report was stated to be malaria, 791 deaths from this cause being reported. This number was stated to be 29 below the mean for the preceding six-year period and the decrease was considered as possibly indicative of the results of the campaign of eradication.

Typhoid fever.—Steady decrease was noted for the five-year period in typhoid fever deaths in the northern rural districts of the island, with a sudden apparently temporary rise to 385 deaths in 1924. In the southern rural districts there was a marked increase, the figures quoted being as follows: In 1921, 94; 1924, 166; 1925, 293 deaths. Urban prevalence was quoted as follows: Port of Spain—1921, 287 cases; 1923, 365 cases; 1924, 373 cases; 1925, 170 cases. In the next largest town, San Fernando, steady increase was noted, the number of deaths rising from 11 in 1921 to 18 in 1923, to 36 in 1924, and 43 in 1925.

Tuberculosis.—There were reported 519 new cases occurring during the year, with 439 deaths.

VIRGIN ISLANDS

Communicable diseases—January, 1927.—During the month of January, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	9	Imported, 3.
Dysentery	1	Unclassified.
Fish poisoning	6	
Gonorrhea	3	Imported, 2.
Syphilis	3	Secondary, 2; of cerebrum, 1.
St. Croix:		
Filariasis	1	Imported.
Schistosomiasis	2	Schistosoma mansoni.
Tetanus	1	
Uncinariasis	17	Necator americanus.

YUGOSLAVIA

Communicable diseases—January, 1927.—During the month of January, 1927, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	14	3	Scarlet fever	561	101
Cerebrospinal meningitis	3		Smallpox	3	
Diphtheria	174	31	Tetanus	7	4
Dysentery	25	4	Typhoid fever	316	50
Influenza [1]	9,359	21	Typhus fever	43	3
Lethargic encephalitis	3		Whooping cough	183	20
Measles	940	10			

[1] Includes report from Jan. 22-31 only.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended March 11, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Dec. 12-25, 1926: Cases, 2,342; deaths, 1,984.
Calcutta	Jan. 9-15	88	65	
Siam				Apr. 1-Jan. 8, 1927: Cases, 7,867; deaths, 5,179.
Do	Jan. 2-8	20	15	
Straits Settlements:				
Singapore	Dec. 19-25	3	3	
Do	Dec. 26-Jan. 1	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended March 11, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Azores:				
St. Michael's Island—				
Furnas	Nov. 7-13	4	1	27 miles distant from port.
Brazil:				
Rio de Janeiro	Jan. 2-8	1		
Ceylon:				
Colombo	Jan. 9-22	17	7	5 plague rodents.
Egypt				Jan. 22-28, 1927: Cases, 1. Total, Jan. 1-28, 1927: Cases, 13. Corresponding period, 1926; nil.
India				Dec. 12-25, 1926: Cases, 2,277; deaths, 1,486.
Bombay	Jan. 16-22	2	2	
Madras Presidency	Jan. 2-8	91	59	
Java:				
Batavia	Jan. 9-15	25	24	
East Java and Madoera	Dec 19-25	2	2	
Do	Dec. 26-Jan. 1	1	1	
Madagascar				Dec. 1-15, 1926: Cases, 152; deaths, 141.
Province—				
Itasy	Dec. 1-15	11	11	Bubonic, 3; pneumonic, 5; septicemic, 3.
Moramanga	do	21	17	Bubonic, cases, 11; deaths, 7; pneumonic, 4; septicemic, 6.
Tananarive	do	120	113	Bubonic, cases, 55; deaths, 48; pneumonic, 35; septicemic, 30.
Tananarive town	do	5	5	Bubonic, 3; septicemic, 2.
Other localities	do	115	108	Bubonic, cases, 52; deaths, 45; pneumonic, cases, 35; deaths, 35; septicemic, cases, 28; deaths, 28.
Mauritius				November, 1926: Cases, 14; deaths, 12.
Plaines Wilhems district	Nov. 1-30	1	1	
Port Louis	do	13	11	
Siam				Jan. 2-8, 1927: Cases, 30; deaths, 22.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Rio de Janeiro	Jan. 2-Feb. 5	48	22	
Sao Paulo	Oct 25-Dec. 5	22	9	
Canada	Feb. 13-19			Cases, 36.
Alberta	do	9		
British Columbia:				
Vancouver	Jan. 31-Feb. 6	2		
Manitoba	Feb. 13-19	2		
New Brunswick	do	1		In Westmoreland.
Ontario	do	15		
Kingston	do	1		
Toronto	do	4		
Saskatchewan	do	9		
China:				
Canton	Nov. 1-30	1		
Chungking	Jan. 2-8			Present.
Hongkong	Feb. 19-25	11	7	Chinese.
Tientsin	Jan. 16-22	2		
Egypt:				
Alexandria	Jan. 8-14	1		
France:				
Paris	Jan. 21-31	3	1	
Great Britain:				
England and Wales—				
Monmouthshire	Feb. 25	22		
Newcastle on Tyne	Feb. 5-12	3		
Sheffield	Jan. 22-Feb. 5	118		
India				Dec. 12-25, 1925: Cases, 6,185; deaths, 1,754.
Bombay	Jan. 16-22	22	15	
Calcutta	Jan. 9-15	134	87	
Karachi	Jan. 16-22	2		
Madras	Jan. 23-29	17	1	
Japan:				
Kobe	do	1		
Java:				
East Java and Madoera	Dec. 19-25	1		
Luxemburg:				
Luxemburg	Dec. 1-31	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended March 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico:				
Mexico City	Jan. 29-Feb. 12	2		Including municipalities in Federal district
Nuevo Leon State—				
Montemorelos	Feb 24			Reported present.
Monterrey	do			About 60 cases reported present in one hospital; other cases stated to exist
Piedras Negras	Feb. 25	68		
Victoria	do			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Siam				Jan. 2-8, 1927: Cases, 3; deaths, 2.
Bangkok	Jan. 2-8	3	2	
Straits Settlements:				
Singapore	Dec. 19-25	5		
Do	Dec. 26-Jan. 1	1		
Yugoslavia				Dec. 1-31, 1926: Cases, 3.
Do	Jan. 1-31			Cases, 3.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Argentina:				
Rosario	Dec. 1-31		1	
Greece:				
Saloniki	Jan. 25-31	1		
Mexico:				
Mexico City	Jan. 30-Feb. 12	17		
Turkey:				
Constantinople	Jan 16-22			One death reported by press.
Yugoslavia	Jan. 1-31	43	3	

Reports Received from January 1 to March 4, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 4	130	96	
India	Oct. 10-Nov. 27			Cases, 15,607; deaths, 9,185.
Bombay	Jan. 9-15	1	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-8	79	54	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-8	1	1	
Indo-China	July 1-31			Cases, 2,204; deaths 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Bangkok	Oct. 31-Jan. 1	16	5	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Dec. 18	10	5	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tamfaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Buenguela district	Nov. 16-Dec. 31	9	6	
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Sao Paulo	Nov 1-14	1	1	
British East Africa:				
Tanganyika Territory	Nov 21-Dec. 18		12	
Uganda	Sept. 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Macassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents
Do	Jan. 2-8	1		
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Nov. 27			Cases, 12,988; deaths, 7,810.
Bombay	Nov. 21-27	1	1	
Madras	Oct. 31-Jan. 1	581	324	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-8	3	2	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No case.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-8	11	11	
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Nov. 30	14	14	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Nov. 30	53	36	
Tamatave	do	14	1	
Tananarive	do			Cases, 309; deaths, 285.
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Nov. 30	39	25	
Mauritius:				
Plaines Wilhems	Oct. 1-31	2	2	
Port Louis	do	7	7	
Nigeria	Aug. 1-Oct. 31	865	775	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Departments—				
Ancash	Dec. 1-31	6	6	
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Libertad	Dec. 1-31	2		
Lima	Nov. 1-Dec 31	42	14	
Canete Province	do	16	9	
Chancay Province	do	14	1	
Lima Province	do	12	4	
Portuguese West Africa:				
Angola—				
Benguela	Oct. 16-31	8	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Bousse	do	8		
Djeneniana	do	8		
Kairouan	do	3		
Maharès	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar district	Nov. 21-27	1		Native.
Craddock district	Jan. 2-8	2	1	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bethaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-8	2		
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926. Reported Dec. 17.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20			Cases, 698.
Algiers	Dec. 11-31	4		
Do	Jan. 1-10	1		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Feb. 12			Cases, 271.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Feb. 12	57		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Feb. 12	16		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Feb. 12	6		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Feb. 12	170		
Kingston	Jan. 1-Feb. 5	2		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Feb. 12	47	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Feb. 12	28		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China.				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-30	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 2-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-22	2		
Chosen	Aug. 1-Oct. 31	47	16	
Seoul	Nov. 1-30	2		
Egypt:				
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Nov. 30	214		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-20	7	1	
French Settlements in India	Aug. 29-Dec. 4	108	108	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Oct. 31	57	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Feb. 5			Cases, 2,724.
Bradford	Jan. 9-22	2		
Newcastle-on-Tyne	Dec. 5-11	2		
Do	Jan. 2-Feb. 5	11		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-22	243		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
India	Oct. 10-Nov. 27			Cases, 13,112; deaths, 3,218.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-15	29	20	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-8	114	89	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-15	21	21	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-22	25	3	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-8	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925; Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Nov. 13	16		
Genoa	Dec. 20-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 5	45		
Japan	Oct. 24-Dec. 4	6		
Kobe	Nov. 11-20	1		
Yokohama	Nov. 27-Dec. 3	2		
Java.				
Batavia	do	2		Province.
Surabaya	Oct. 24-Nov. 27	10	1	
Lithuania	Nov. 1-30	2		
Luxemburg	do	1		
Mexico	July 1-Sept. 30		413	
Chihuahua	Dec 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal district.
Do	Dec. 26-Jan. 8	1		Do.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Feb. 12		14	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-22		5	
Nigeria	Aug. 1-Oct. 31	73	4	
Peru:				
Arequipa	Dec. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 18			Cases, 56; deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-15	5		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-15	1		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 268.
Bangkok	Oct. 31-Jan. 1	28	10	
Sierra Leone:				
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Straits Settlements:				
Singapore	Oct. 31-Dec. 18	6	2	
Tunisia	Oct. 1-Dec. 31	9		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-30	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept 21-Dec. 20	59	2	
Bulgaria	July 1-Nov. 30	33	5	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	3	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug 1-Oct. 30	17	2	
Seoul	Nov. 1-30	1		
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Ravokan	do	1		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29- Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Nov. 30	24	3	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-29	29		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Jan. 31	6		
Jaffa	Nov. 23-Dec. 20	6		
Do	Jan. 11-31	2		
Jerusalem	Sept. 1-Oct. 30	19		
Mejdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	10		
Safad	Dec. 28-Jan. 3	1		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 18			Cases, 314; deaths, 30.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Turkey:				
Constantinople	Dec. 12-25	3		
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
Do	Jan. 2-8			Do.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 4, 1927—Continued

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta.				
Gaoua district	Oct. 25	2		

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SPECIAL ARTICLES

A Study of the Problem of Fetal and Neonatal Death

Reports of the Health Section of the League of Nations

Division of Venereal Diseases, July 1–December 31, 1926

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

VOL. 42 MARCH 18, 1927 NO. 11

THE PROBLEM OF FETAL AND NEONATAL DEATH

By E. BLANCHE STERLING, *Acting Assistant Surgeon, United States Public Health Service*

I. Extent of the problem

In the year 1924, in the birth registration area of the United States (estimated to contain 76.2 per cent of the population), there were born alive 1,930,614 babies. In addition there were 75,817 dead births. Since the registration of stillbirths is notoriously inadequate, the number of infants born dead is obviously much greater than the figures indicate, and the number of actual and possible additions to the population was decidedly in excess of the reported 2,006,431.

Of the infants born alive, 28,631 died before they were one day old. Within a week, the number rose to 64,004; two weeks brought the toll up to 69,688; and in less than a month 74,527 of the babies born alive in the registration area in 1924 had died (1). Since every stillbirth has been a potential live birth and a possible increment to the population, the loss to the population through death in infancy must necessarily include the stillbirths.

When to the number of neonatal deaths, 74,527, are added the 75,817 stillbirths we have a total of 150,344 neonatal (within one month of birth) and fetal deaths, which is 70.7 per cent of the whole number of infant deaths, antenatal, natal, and postnatal, in the birth registration area.

These figures are for the birth registration area only. If the same rates obtained for the remainder of the country, the stillbirths and early infant deaths amounted to about 100,000 each for the entire United States in 1924. More than one-half of the total infant mortality in the country is accounted for by these early infant deaths in the first month (1), (2).

These figures indicate the seriousness of the problem, and its gravity is increased by the fact that the fall in the neonatal mortality rate does not keep pace with the fall in the total infant mortality rate. A comparison between the two rates in this country can be made only for the past nine years, before which time we have no record of the neonatal rates.

Total infant mortality rates and neonatal mortality rates in the expanding registration area 1916 to 1924

Year	Total infant mortality rate	Neonatal mortality rate
1916	101	44
1917	94	43
1918	101	44
1919	87	42
1920	86	42
1921	76	40
1922	76	40
1923	77	40
1924	71	39

It will be seen that in nine years there was a fall in the total infant mortality rate of about 30 per cent, while in the neonatal rate the decrease was about 11 per cent. In other words, the total rate has fallen almost three times as fast as the neonatal rate.

The graphs in Figure 1 show how slight is the downward trend in the neonatal rates as compared with that of the total infant mortality rates.

In England in the 14 years from 1911 to 1924 there was a decrease in the neonatal rate of 17.5 per cent (3). In New Zealand there has been practically no decrease in the average of the male and female neonatal rates for the 50 years from 1872 to 1923 (4). The total infant mortality rate fell from 106 in 1872–1874 to 48.6 in 1915–1919.

Our neonatal mortality rate is greater than that of England and Wales (1924), Australia (1924), Ireland (1922), New Zealand (1924), Netherlands (1922), and Uruguay (1923).

When to the stillbirths in the United States are added the neonatal deaths, we have approximately 200,000 fetal and neonatal deaths in a single year in this country. If we can secure a reduction of only 12 per cent in another nine years, and our present birth rate continues, we shall have lost upward of 2,000,000 prospective citizens at the end of the next decade. This is naturally a matter of grave concern to the country.

II. Causes of Fetal and Neonatal Mortality

(A) CAUSES OF STILLBIRTHS

Considerable confusion has centered around the definition of stillbirths. The following classification, however, is that used by the Health Organization of the League of Nations (5) and in the reports of the Ministry of Health of Great Britain (6), as well as by investigators in this country (7):

Antenatal stillbirth: Stillbirth before labor.

Intranatal stillbirth: Stillbirth during labor.

Postnatal stillbirth: Stillbirth a short time after birth, during which the heart beats but respiration is never established.

In the infant mortality statistics for 1924, issued by Census Bureau (1), from a selected section of the United States registration area (Connecticut, Illinois, New Jersey, Oregon, Utah, District of Columbia, Baltimore, Md., and New York City) the causes of the stillbirths reported are those listed below, together with the percent-

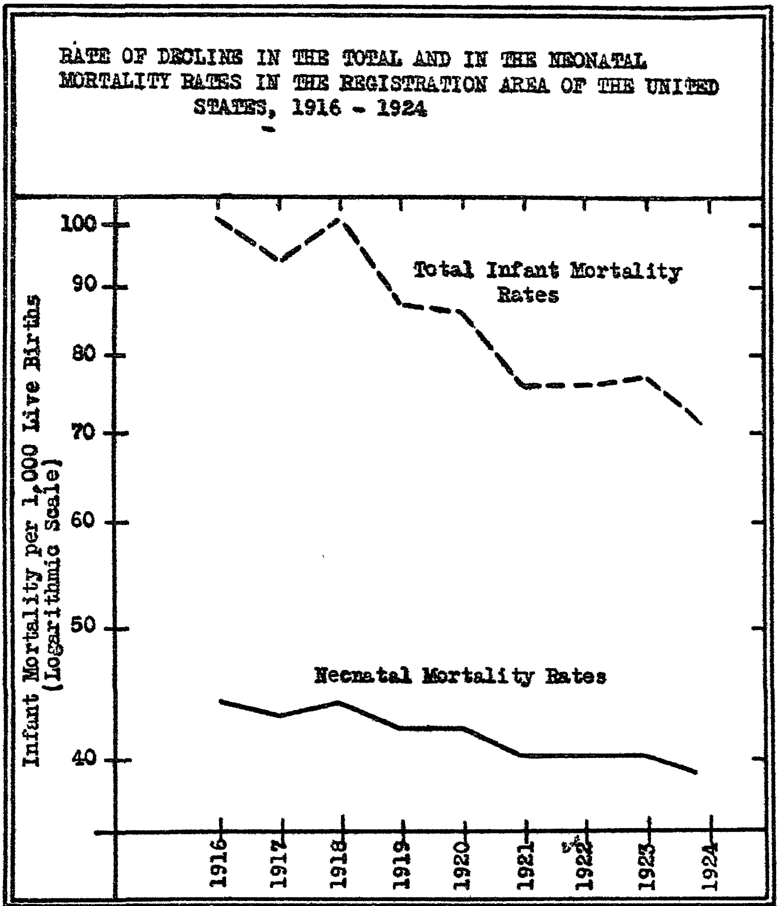

FIG. 1

ages of certain causes to stillbirths from all causes. The specified causes are arranged in the order of their frequency.

Causes of stillbirth	Per cent
All causes	100
Prolapse and compression of cord	9.1
Diseases of placenta and membranes	8.9
Difficult labor	8.6
Abortion, miscarriage, and premature birth	8.2
Malpresentation	5.3

Causes of stillbirth	Per cent
Albuminuria and other diseases incident to pregnancy	5. 2
Asphyxia of child (cause not stated)	4. 1
Malformation	4. 1
Traumatism and overwork	3 7
Syphilis	2 6
Death in utero	2 8
General diseases	3 1
Other specified causes	1 0
Causes not specified and unknown	30 2

These are the actual diagnoses made by the attendants who reported the 18.634 stillbirths under consideration, and may be considered as representative of the knowledge of the causation of stillbirths of the average accoucheur in the selected area. It is not to be supposed that other than a clinical diagnosis was made in the vast majority of these cases.

It is interesting to compare these diagnoses with the conclusions reached by the few investigators who have made a study of the pathology of fetal and neonatal death. Prominent among these are Williams and Adair and O'Brien in the United States, Holland in England, and Schwartz in Germany. In the studies made by autopsy upon stillborn babies and those dying in the neonatal period, evidence is obtained which vastly supplements the clinical diagnosis. Williams's (8) series of 302 fetal deaths occurring in 4,000 consecutive deliveries included infants dying at the time of labor, those dying during pregnancy from the time of viability onward, and those during the two weeks immediately following labor.

This, therefore, includes neonatal as well as fetal deaths, and the causes determined refer to the group as a whole. The close relationship between fetal and neonatal deaths is well expressed by Holland (6) who states that "the high infant death rate during the first few days and weeks of life is doubtless due in part to causes which, in some cases, result in fetal death, and we may reasonably hope that a reduction of stillbirths would be associated with a lowered infant mortality."

Of the 302 dead babies in Williams's series, 212 came to autopsy. His analysis of the causes of death in the whole series resulted in the following figures:

Cause	Per cent	Cause	Per cent
Syphilis	[1] 34. 44	Placenta praevia and premature separation	5. 26
Dystocia	15. 20	Deformities	3. 64
Toxemia	11. 55	All other causes	10. 69
Prematurity	10. 59		
Cause unknown	8. 61		

Prematurity was assigned as the cause of death only after the exclusion of any underlying cause, such as toxemia, placenta praevia, or acute infectious disease in the mother. To be classed as a cause of

[1] White only, 12.12.

death, it was necessary that the imperfect state of development of the child should be the only ascertainable cause.

A clinical history and Wassermann test were obtained in the case of each of the 4,000 mothers; a microscopical examination of the placenta was made and a fetal Wassermann was taken at the time of birth.

In a study of 705 fetal and neonatal deaths reported by Williams in 1915 (9) the following figures are given:

Causation of 705 fetal deaths (white and colored)

Cause	Number	Per cent incidence	Cause	Number	Per cent incidence
Syphilis	186	26.4	Deformity	24	3.4
Unknown	127	18.0	Inanition	23	3.3
Dystocia	124	17.6	Placenta praevia	22	3.1
Various	79	11.2	Premature separation of placenta	13	1.8
Prematurity	50	7.1	Suffocation (criminal)	6	.9
Toxemia	46	6.5	Debility	5	.7

In this valuable study each placenta was carefully described and subjected to microscopical examination and nearly 90 per cent of the dead babies came to autopsy. Under dystocia is grouped the deaths following mechanically difficult labor, whether operative or spontaneous. Toxemia includes eclampsia, nephritis, and occasional rare conditions, and Williams calls attention to the fact that this cause of death, which is usually considered the best point of attack in prenatal care, is only operative in 6.5 per cent of the deaths.

In the series of Adair and O'Brien (7) autopsies were performed on approximately 240 cases. Antenatal stillbirths made up nearly one-fifth of the total and were caused mainly by toxemia of pregnancy, syphilis, and undetermined causes.

About one-sixth of the series were intrapartum stillbirths, in which birth trauma played a large part.

The postnatal stillbirths included a considerable number of major malformations. About one-half of these deaths were caused by trauma.

Adair and O'Brien (7) found the cause of fetal and neonatal death in a series of over 200 cases approximately as given in the table below. These figures are approximations from the untabulated report studied.

Cause	Per cent incidence	Cause	Per cent incidence
Malformations	11.42	Prematurity	6.67
Toxemia	10.47	Infection in infant	6.67
Syphilis	7.61	Various	11.42
Placental causes	2.86	Unknown	6.67
Dystocia and birth injury	36.19		

Eardly Holland (6) reported, in 1922, the results of a brilliant piece of work in which an exhaustive study was made of 300 fetal deaths. He concluded that the primary causes of these deaths were—

(*a*) Maternal states, such as syphilis and eclampsia.

(*b*) Complications of labor, such as placenta pracvia, contracted pelvis.

(*c*) Placental states, such as retro-placental haematoma.

(*d*) Fetal states, such as prematurity and deformities.

Holland's methods of studying the various factors concerned were such as to give his results great weight. In the case of the mother, he secured a clinical and obstetrical history, a Wassermann test, and a catheter specimen of urine, if possible. A Wassermann reaction in the father was obtained where possible.

The fetus was weighed, measured, and given a complete post-mortem examination. A culture was made from the heart blood. No Wassermann reaction was obtained, but the fetal organs were weighed and measured; the organs of the fresh fetuses were examined histologically; and pieces of liver, spleen, lung, kidney, and suprarenal capsule were examined by Levaditi's method for *Treponema pallidum.* In 200 fetuses, dark field examination was also employed. The ends of the long bones of the fetus were examined for osteo-chondritis. The placenta was weighed, measured, and examined microscopically and macroscopically. The umbilical cord was also examined.

This painstaking care resulted in ascertaining the causes of death in Holland's series to be as follows:

Causes of death in 300 fetuses (Holland)

Cause	Per cent incidence	Cause	Per cent incidence
Syphilis	16	Placental causes	6
Toxemia of pregnancy	10	Fetal deformity	5
Complications of labor	51	Unknown	10
Maternal diseases	2		

Holland notes that his findings with regard to the incidence of syphilis are in close accord with the results obtained by Williams in 1915 (9). This refers to the white cases only in Williams's series. He concludes that cranial stress is responsible for far more fetal deaths than has been hitherto suspected. Among 167 fresh fetuses the tentorium cerebelli was found torn in 81 (48 per cent), and this was associated with tearing of the falx cerebri in 5 cases and with subdural hemorrhage in all but 6. More fetuses died from the complications of labor than from maternal or placental diseases during pregnancy.

Of 100 dead-born viable fetuses Holland found that, generally, 40 were macerated and 60 were fresh (10). Since maceration indicates that the death of the fetus occurred before labor, the figures support the conclusion stated.

In one series of autopsies on stillborn fetuses, Holland (11) found injury of the dura in about half the cases.

In Schwartz's (12) autopsies, evidence of hemorrhage and degenerative changes in the brain substance was found in the big majority of cases up to 5 months of age.

The recent study of Holland and Lane-Claypon on fetal and neonatal death (13) of a series including 1,269 stillbirths and 404 neonatal deaths brings out again the predominance of the complications of labor as a causative factor. In 1,408 of these cases the following percentage distribution was found:

Causes of fetal and neonatal deaths (Holland and Lane-Claypon)

Cause	Per cent	Cause	Per cent
Complications of labor	35. 5	Placental states	1. 2
Antepartum hemorrhage	18. 8	Fetal states	10. 5
Toxemia of pregnancy	11. 1	Prematurity	3. 6
Syphilis	8. 7	Unknown	8. 1
Maternal states	2. 5		

The frequency of intracranial lesions is not as high as in Holland's earlier study, which may be accounted for by the fact that the data in the later report are less detailed.

Ehrenfest (14) states that in "at least 40 per cent of all autopsies properly performed on all stillborn infants and those dying within the first few days after birth, intracranial traumatic lesions of some sort are discovered." He considers that many of the infant deaths ascribed to asphyxia are due to serious trauma, since the appearance of the child in these cases closely resembles that of deep asphyxiation.

It will be of interest to note the causes of stillbirth as given by students of the subject who have not based their diagnoses on pathological examinations.

Lezynsky and Brown (15) state that the causes of stillbirth in San Francisco in 1919 were as follows:

Causes of stillbirth in San Francisco, Calif., 1919

Cause	Per cent incidence	Cause	Per cent incidence
Congenital defect in infant	7. 63	Syphilis	0. 56
Injuries at birth	8. 76	Prematurity	27. 12
Toxemia in mother	9. 88		

Howard (16) gives no figures, but agrees that fetal mortality is influenced by errors of implantation and of development of the fetus, accidents in utero, malposition of fetus and cord, infectious diseases of the mother or of the fetus or of both, deformities, various toxemias and chronic diseases of the mother, and by injuries and accidents in pregnancy and labor.

In Beck's (17) series of 1,000 cases supervised during pregnancy there were 19 stillbirths (1.9 per cent) the causes of which were as follows: Complications of labor, 5; toxemia, 4; accidental hemorrhage, 2; placenta praevia, 1; syphilis, 1; not stated, 6.

Baker (18) considers that stillbirths are due to falls, accidents, fright, injury, shock, induced labor, debility, malnutrition, fatigue, overwork, severe illness, syphilis, or abnormal development of the child before birth.

In Greenhill's (19) series of 78 mothers with eclampsia there were 23 fetal deaths, including macerated fetuses, stillborn fetuses (presumably fresh), and neonatal deaths. Eclampsia was presumably the cause of these 23 deaths, but it is impossible to say just what proportion of the mortality was due to stillbirths.

Davis and Harrar (20) note that in 472 cases of toxemia of pregnancy with convulsions (eclampsia) at the New York Lying-In Hospital prior to 1919, there were 175 stillbirths, or 37 per cent. Since 1918, in 134 cases there were 29 stillbirths, or 22 per cent.

Hipsley (21) reported a series of 100 deaths occurring in 1,417 cases. Of this number, 68 were stillborn and were due to the following "probable causes:"

Probable cause of death	Fresh still-birth	Macerated still-born	Total	Per cent
Eclampsia and allied conditions	12	5	17	25.0
Severe anemia and acute infections associated with high temperature	1	1	2	2.94
Syphilis in mother	2	0	2	2.94
Accidental hemorrhage	5	2	7	10.29
Placenta praevia	4	1	5	7.35
Congenital deformities	2	1	3	4.41
Malpresentation and malposition	3	0	3	4.41
Dystocia due to disproportion between head and pelvis—high forceps or craniotomy	8	0	8	11.76
Breech births	6	0	6	8.82
Prolapsed cord	5	0	5	7.35
Cause not ascertainable	4	6	10	14.71

It will be seen that in this series by far the greatest fetal mortality has been ascribed to the toxemias of pregnancy (25 per cent). However, there are some changes which must be made in this tabulation if the results are to be compared with those of Williams and other investigators. Among the dystocia should be included those deaths due to breech births, prolapsed cord, and malpresentations and malpositions. With this correction, stillbirths due to dystocia or the complication of labor (32.34 per cent) are 29 per cent greater than those due to the toxemias of pregnancy.

Doctor King (22), medical officer of health of the Borough of Ilkeston, in a series of 35 stillbirths, ascribes the fetal deaths to the following causes:

	Per cent
Complications of labor	31. 4
Syphilis	15. 5
Toxemia of pregnancy, "such as excessive vomiting of pregnancy and diseased condition of placenta"	14. 2
Miscellaneous maternal diseases and fetal deformities	11. 9
Toxemia of pregnancy (macerated fetus)	9. 1
Various illnesses of mother just before confinement	8. 5
Unknown	9. 1

Complications of labor again stand out as the most important causes of stillbirths. The criticism which might be made of this report is that it fails to show accurately the incidence of toxemia as a cause of stillbirth. If everything mentioned in the report under this classification can be legitimately included therein, the percentage incidence of toxemia would be 23.3; but whether such summation is justifiable is a question. There can be no doubt that "vomiting of pregnancy" is due to toxemia; but the term "diseased conditions of the placenta" may be used to describe various abnormalities, some of which probably have no connection with toxemia. If in this particular instance, infarcts of the placenta are meant, some of these might properly be ascribed to toxemia, as the association of these conditions with albuminuria and pronounced nephritic toxemia has been noted.

The Health Organization of the League of Nations (5) sums up the causes of stillbirths in a few concise phrases:

The cause of antenatal fetal death is usually some maternal or placental disease. The fetus is usually macerated when born.

The common causes of intranatal fetal death are intracranial injury, prolonged labor, prolapse of cord, separation of placenta, etc.

The common causes of postnatal fetal death are severe head injuries due to difficult labor.

Miscarriage.—It is extremely difficult to determine accurately the frequency with which abortion, or miscarriage, occurs or the percentage incidence of the various etiological factors. Since the laws in most of the States relating to the reporting of stillbirths do not require reports on all products of conception, it follows that many, if not most, abortions or miscarriages are not reported.

Statistics given by various authors differ widely, but Rock (23) in a recent paper concludes that, in general, about one out of every four pregnancies ends prematurely. Ballantyne (24) states that "there is no certain knowledge regarding the miscarriage rate, but it may be safely stated to be not less than 150 per 1,000 conceptions." Williams (25) concludes that a conservative estimate indicates that about every fifth or sixth pregnancy in private practice ends in spontaneous abortion. This does not take into account the very earliest cases or those abortions criminally produced.

These estimates give an idea of the magnitude of the nonviable fetal loss.

Since the expulsion of the ovum in the early months of pregnancy is usually preceded by the death of the fetus, Williams (25) ascribes as cause of the death and subsequent abortion the following factors: Abnormalities of development of the fetus; infectious diseases or poisoning, with phosphorus, lead, illuminating gas, etc., of the mother; malnutrition of mother (very exceptional); abnormalities of generative tract; possibly chronic metritis; reflex influences (few cases); alcohol and other chronic poisoning; defective diet (possible). Traumatism and overwork are frequently assigned as causes of miscarriage.

Rock (23) cites Huntington's paper (26) in which the latter states that, in a series of 39 miscarriages, 21 were definitely due to defective germ plasm. Three were probably due to the same cause. One was due either to defective germ plasm or arrested development due to extreme retroversion. In one case the death of the fetus was caused by extreme fibroid degeneration of the uterus. In another the degeneration of the fetal tissue was apparently caused by nephritis. One followed appendectomy with drainage; another, dilation and curettage for continual bleeding; and one followed rupture of amniotic sac by artificial means. Two were due to placenta praevia; three were therapeutic abortions; and four were due to unexplained causes. Seventy per cent of the fetuses were dead before the miscarriage occurred. In 20 per cent the cases were not accidental; and in only 10 per cent could trauma or mental shock be possibly ascribed as a cause.

Rock (23) refers to Hunner's (27) work in support of ureteral stricture as a cause of abortion; and to the work of McCollum (28) and Evans and Bishop (29) as indicating that a defective diet may possibly be incriminated in some cases.

Since the Holland study of fetal death is by far the best that has been done when stillbirths alone are considered, a comparison of his data with those of the Bureau of the Census will tend to bring out clearly the difference between the knowledge obtained by careful autopsy and that possessed by the average obstetrician or midwife.

Causes of fetal death or stillbirths

Cause	Bureau of the Census	Holland
	Per cent	*Per cent*
Complications of labor	23.1	51
Diseases or conditions of placenta and membranes	8.9	6
Prematurity (abortion, miscarriage, and premature birth)	8.2	
Toxemias of pregnancy	5.2	10
Malformation (congenital defects)	4.1	5
Syphilis	2.6	16
Traumatism and overwork	3.7	
Other diseases and conditions of mother	3.1	2
Various causes	10.9	
Not specified and unknown	30.2	10

The application of the Chi square test to these two sets of items shows that there is almost no probability that the differences between the two distributions could be due to chance alone. The causes assigned by autopsy are quite different from those assigned by clinical diagnosis.

(B) CAUSES OF NEONATAL DEATHS

Since medical authorities agree that fetal deaths, or stillbirths, and neonatal deaths are largely due to the same causes, the investigators who have done the most important work in the etiology of these conditions have made no attempt to separate the two. Hence, in the studies of Williams, Adair, and Holland and Lane-Claypon the causes of fetal and neonatal death are considered together.

In the report of the Bureau of the Census (1) the most important of the causes of death under 1 month of age are given in the list below. The causes have been arranged in the order of their greatest incidence, as reported by the attendants who notified the deaths. It will be seen that premature birth accounts for almost one-half this mortality.

Most important causes of death under 1 month, birth registration area, 1924

Cause	Per cent	Cause	Per cent
Premature birth	43. 9	Syphilis	0. 8
Injury at birth	12. 4	External causes	. 7
Congenital malformation	11. 9	Whooping cough	. 4
Other diseases of early infancy	6. 2	Diseases of stomach	. 4
Congenital debility	5. 2	Measles	. 2
Respiratory diseases	5. 2	Erysipelas	. 2
Diarrhea and enteritis	3. 0	Tetanus	. 2
Convulsions	1. 0		

It is worthy of note that the respiratory diseases constitute quite as important a cause of death as "congenital debility," which was formerly a cloak for many doubtful diagnoses.

Adair's studies (7) led him to the conclusion that probably 50 per cent of the deaths in early neonatal life are due to birth trauma, and that infection plays a very prominent rôle after the fourth day of life. In his series the main factors in the etiology of fetal and neonatal deaths are toxemias of pregancy, birth trauma, syphilis, other infections and undetermined causes. Premature birth due to some of these factors and to other unintentional causes plays an important rôle.

Holt and Babbitt (30), in a study made in 1914, state that prematurity was responsible for half the deaths occurring during the first 14 days in a series at the Sloane Hospital, New York. Congenital weakness and atelectasis together made up 58 per cent of the total deaths; complications of labor, 20 per cent; malformations and congenital diseases other than syphilis, 4 per cent; and syphilis 4 per

cent. In this series, the number of stillbirths was one-and-one-half times as large as the number of deaths from all causes during the first two weeks. Holt and Howland (31), in 1919, stated that about one-third of the deaths at birth or in the first few days, at the Sloane Hospital, were due to complications of labor.

Lezynsky and Brown (15), in San Francisco, found the causes of deaths within the first and second weeks to be as follows:

Cause	Per cent	Cause	Per cent
Congenital defects in infant	30. 14	Syphilis	1. 37
Injuries at birth	7. 30	Prematurity and debility	41. 10
Toxemia in mother	4. 57		

In studies made by the Children's Bureau (32) in Gary, Ind., prematurity was found to be the largest single cause of early death. This was also true of Akron, Ohio (33), and Baltimore, Md. (34); but in New Bedford, Mass. (35), congenital debility far outstripped prematurity as a cause of death. In the light of such studies as those of Williams, Adair, and Holland, we know that many of these deaths were due to causes underlying the prematurity.

In Beck's series (17), of 1,000 consecutive deliveries there were 6 deaths of infants under 14 days—1 caused by acrania, 1 premature, 1 case of syphilis, 1 of umbilical hemorrhage, and 2 in which the causes are not stated. These, however, were all supervised during pregnancy, and can not be compared with a random group.

In a New Zealand study (4), among 3,399 infants dying under 1 month of age from 1920 to 1923, the causes were stated as follow:

Cause	Per cent	Cause	Per cent
Premature birth	45. 2	Diarrhea, enteritis, etc	1. 3
Congenital debility, malformation, and icterus	26. 5	Syphilis	. 4
Convulsions	3. 3	Influenza	. 2
Bronchitis, pneumonia, etc	2. 3	Various	20. 8

Premature birth appeared to be the cause in almost half of the series, while congenital debility, malformation, and icterus accounted for more than one-fourth of the deaths.

In Hipsley's (21) Australian series of 100 fetal and neonatal deaths, 35 died in the neonatal period. The "probable causes" of these deaths were as follows:

Cause	Per cent	Cause	Per cent
Eclampsia and allied conditions	15. 62	Placenta praevia	3. 12
Severe anemia and acute infections	3. 12	Hemorrhagic disease of infant	15. 62
General peritonitis from ruptured appendix	3. 12	Congenital deformities	9. 38
Epilepsy	3. 12	Malpresentations and malpositions	3. 12
Syphilis in mother	3. 12	Dystocia	3. 12
Accidental hemorrhage	15. 62	Cause not ascertainable	21. 88

In this series practically one-fourth (24.98 per cent) of the deaths were due to maternal causes—toxemia or various diseases and conditions of the mother other than syphilis. The latter alone is ascribed as a cause in only 3.12 per cent. Including accidental hemorrhage with placenta praevia (because antenatal hemorrhage is usually associated with placental causes and postnatal hemorrhage is sometimes placental in origin), we have 18.74 per cent of the deaths due to probable placental causes. Disease and deformities of the infant combined are responsible for 25 per cent of the mortality. The complications of labor here do not seem to constitute such a serious problem. Only 6.24 per cent of the deaths are ascribed to this cause.

The statistics of the Medical Research Committee (36) for 1914 place premature birth at the head of the list of causes of infant mortality from developmental conditions:

Deaths under 1 month from developmental conditions (1914)

Premature birth	17. 88
Congenital malformation	2. 47
Atrophy, debility, and marasmus	6. 55

Hipsley makes the statement that many of his cases were premature, but does not give prematurity as a cause of death. This is more in line with the investigators who seek the underlying cause of prematurity. It is a generally recognized fact that a premature infant has less chance of survival than a full term infant, but it is rather begging the question to ignore the cause of prematurity.

Pirquet (37) cites Nobel's (38) investigations in support of his statement that a part of the mortality loosely ascribed to "lack of vitality," premature birth, etc., is in reality due to respiratory infections. He has devised a method (not yet published) for fixing the "apex" of a disease, that is, that day in the calendar year upon which the largest number of deaths occur. The "apices" of the number of deaths, based on English statistics, are as follows:

Disease or condition	Number of deaths	Date of apex—average for 1912–1919	Disease or condition	Number of deaths	Date of apex—average for 1912–1919
Infantile debility	83, 000	Jan. 24	Bronchitis	381, 000	Feb. 6
Premature birth	140, 000	Feb. 2	Pneumonia	120. 000	Do.
Congenital malformation	38, 800	Feb. 5	Broncho-pneumonia	176, 000	Feb. 9

The rates from premature birth and congenital debility in the United States show little variation from month to month (1). It is to be assumed that a part of these deaths are due to other causes, and respiratory infections are probably responsible for a considerable amount of this mortality. Adair (39) says that pulmonary infections are not an infrequent cause of neonatal death.

In order to obtain a clear idea of the consensus of opinion regarding the causation of fetal and neonatal death, it will be necessary to make a careful study of the data already submitted. In order to reduce the number of classes of causes and to facilitate comparison of the data from various sources, it is necessary to group certain causes given in the tables, and use a common nomenclature as far as possible. Such a simplification of the data for the Bureau of the Census (1) concerning the causes of stillbirth results in the following figures:

Cause	Per cent
Dystocia (including complication of labor and birth injury)	23. 1
Diseases of placenta and membranes	8. 9
Prematurity (abortion, miscarriage, and premature birth)	8. 2
Toxemia of pregnancy	5. 2
Malformation	4. 1
Traumatism and overwork	3. 7
Syphilis	2. 6
Other diseases and conditions of mother	3. 1
Other specified causes	10. 9
Causes not specified and unknown	30. 2

In the following table is shown the percentage incidence of various causes of fetal and neonatal death. The data from the Bureau of the Census represent the clinical diagnoses made by the various attendants at the births. The last three columns contain data obtained from autopsies and represent the best investigations in this country and England. While the census reports embrace both the white and colored races, the latter constitutes only about 7 per cent of the total population. In Williams's first series both white and colored are included, but in the second, only white infants are studied. The remaining two investigations are of whites only.

Causes of fetal and neonatal death—Rates

	Bureau of the Census			Williams (fetal and neonatal deaths)		Adair and O'Brien, fetal and neonatal deaths	Holland and Lane-Claypon, fetal and neonatal deaths
	Stillbirths	Neonatal deaths	Fetal and neonatal (average of preceding columns)				
Number of cases	18, 634	74, 527		[1] 302	[2] 273	[3] 237	[3] 1, 408
Dystocia (including complications of labor, malpresentation, and birth injury)	23. 1	12. 40	17. 75	15. 20	22. 3	36. 19	35. 5
Prematurity (abortion, miscarriage, and premature birth)	8. 2	43. 97	26. 08	10. 59	5. 1	6. 67	3 6
Toxemia of pregnancy	5. 2		2 60	11. 55	11. 7	10. 47	11 1
Syphilis	2. 6	. 79	1. 69	34. 44	12. 8	7. 61	8. 7
Malformations	4. 1	11. 92	8 01	3. 64	6 6	11. 42	[4] 10. 5
Placenta and membranes	8. 9		4 45	5. 28	9. 9	2. 86	[5] 20. 0
Traumatism and overwork	3. 7		1. 85				
Other diseases and conditions of mother	3. 1		1. 55				2 5
Various causes	10. 9	5. 93	8. 41	10. 69	12. 1	11. 42	
Not specified and unknown	30. 2		15. 10	8. 61	14. 3	6. 67	8. 1
Congenital debility		5. 16	2. 58		[6] 5. 1		
Diseases of early infancy and other diseases		19. 83	9. 91			6. 67	

[1] 212 autopsies, white and colored.
[2] Nearly 90 per cent autopsies white only.
[3] Autopsies.
[4] Includes fetal states.
[5] Includes antepartum hemorrhage.
[6] Includes inanition.

An analysis of the findings recorded makes it plain that there are certain outstanding factors in the etiology of fetal and neonatal death, the complications of labor occupying a preeminent position. It will be seen also that the autopsy findings tend to change the emphasis on some of these factors. Prematurity, ranking first in the Census figures, goes down to fourth or fifth place in the autopsy group. A post-mortem examination brings to light the real cause of death in many premature infants, showing that the child did not die simply because it was premature, but that its premature birth and death were both dependent upon some other factor.

The autopsy elevates syphilis from a comparatively minor rôle to one of considerable importance. Toxemia rises in the scale also, while congenital debility descends. The latter cause enters into only one of the four autopsy series. The one factor that occupies a high place in all series is that of the complications of labor and birth trauma. The act of being born is apparently the greatest hazard the infant has to face.

Factors Influencing or Associated with the Causes of Fetal and Neonatal Death

The process of reproduction takes place under all sorts of social, economic, and physical conditions; and these factors have been studied in their relation to infant mortality. The question of the economic status of the family has received much attention, and poverty has been blamed for much of the high infant mortality. To quote Pearl (40): "It has been maintained that excessive infant mortality is primarily the resultant of the so-called 'degrading influence' of poverty, and such a contention stirs a warmly sentimental feeling of agreement in the minds of a well-meaning public, zealous to do good." Pearl goes on to say that Greenwood and Brown (41) (whose study he considers the best) are "unable to demonstrate any unambiguous association between poverty * * * and the death rate of infants." It is evident, however, that fetal and neonatal mortality must be considered apart from the total infant mortality.

One usually associates overcrowding, insanitary surroundings, poor nutrition, and employment of the mother with poverty; but these conditions are not necessarily the result of poverty. The father's earnings may be diverted to nonessential things, or the mother may go out to work for some reason other than actual necessity.

Rochester (34) found, in Baltimore, that the neonatal mortality was little affected by the father's earnings; though after the first month of life the mortality rate varied with economic status and home surroundings. Brend (36) states that the influence of post-natal environment in neonatal mortality is small. It is Findlay's (36) opinion that "the unlikelihood of the wage element being a factor of any moment is supported by the fact that in times of famine and

industrial trouble, the infantile death rate usually falls. For example, in 1912 the number of people involved in disputes causing stoppage of work and the aggregate duration of working days lost was the highest on record, and yet, with the exception of 1916, the infant mortality was the lowest ever recorded in most of the chief towns of Scotland and England.

English studies (36) have shown that the death rate among infants during the neonatal period differs but little in different social classes and in different types of environment.

Relation of neonatal mortality to social conditions

Social class	Age at death			
	Under 1 week	Second week	Third week	Fourth week
First class	18.3	5.2	3.6	1.6
Second class	22.0	4.6	4.2	3.2
Third class	21.3	5.4	4.0	3.8
Fourth class	21.7	4.9	4.3	3.8
Fifth class	19.7	5.0	5.5	3.4

It will be seen that, in the first two weeks, in which the bulk of the neonatal mortality takes place, the babies born in the highest social class had little better chance of life than those born in the humblest homes. Doctor Kerr-Love, in evidence given before the Royal Commission on Venereal Diseases (36), stated that the babies of the poorest mothers in Glasgow weigh, on an average, 7.1 pounds at birth, the average weight of a healthy infant being 7 pounds.

Forbes's (42) study of infant mortality in Brighton, England, for the 20-year period (1901–1920) on the basis of the economic standing of the parents, gives results which are shown in the following table:

Infant mortality and economic status

	Illegitimate	Poorest	Unskilled worker	Artisan	Well to do
Total births	3,767	7,910	18,025	16,025	5,052
Infantile mortality:					
First week	27.1	18.7	22.2	24.0	19.4
First month	48.0	35.1	34.9	36.1	27.7
First year	170.0	133.0	10?.0	87.0	60.0

Doctor Forbes concludes that "the chances of survival of the newly born infant are not materially influenced by the social and sanitary conditions under which the mother lives during pregnancy, and given equally favorable surroundings, the infants of the various classes have equal chance of survival after birth." Illegitimacy, however, appears to be a real handicap.

Though Ashby (43) agrees with those who feel that poverty and hard work on the part of the mother influence the physique of the

child, he calls attention to the fact that others (Eicholz and Cunningham) have noted the small percentage of unhealthy births among the poor and believe that the results of poverty are not transmissible from parent to offspring. In a recent report, Newman (44) agrees that most babies, even babies of apparently worn-out or unhealthy mothers, are wellborn. Dr. Harold Kerr has recently been able to show that in spite of acute industrial depression the infant mortality rate in Newcastle-upon-Tyne was a low record. What influence, if any, the "dole" has on this rate might be an interesting question.

It would seem, therefore, from the evidence that poverty, per se, must be absolved from an unduly large share in the responsibility for fetal and neonatal mortality. Maternal efficiency appears as the most important factor in the problem of nutrition and growth according to a recent English report (45) and may be active to some extent in the neonatal problem. The efficiency of the mother did not seem to be closely related to poverty, but did seem to have some relation to size of family, overcrowding, and the health of the mother. This report found no connection between maternal health during pregnancy and the condition of the surviving child.

Woodbury states that social and economic factors are of relatively little importance in explaining the high mortality among premature infants (46); and since much of the neonatal mortality is among infants born prematurely, it would seem that social and economic factors are of relatively little importance in explaining the high neonatal mortality. From the same publication the following table seems to show, in the opinion of its author, some correlation between the earnings of the father and neonatal mortality:

Neonatal mortality rates by father's earnings—7 cities

Annual earnings of father	Neonatal mortality rate	Annual earnings of father	Neonatal mortality rate
No earnings	60.7	$650–$849	46.5
Less than $450	55.8	$850–$1,049	38.0
$450–$549	46.0	$1,050–$1,249	33.1
$550–$649	43.3	$1,250 and over	38.2

It is true that there is a slight trend downward in the rates from the lower earnings group toward the higher earnings group. This is also shown in Figure 2. It will be seen, however, that the fall in the death rates from gastrointestinal and respiratory diseases concurrently with the rise in the father's earnings is so much greater than the fall of the death rate from causes associated with early infancy in relation to the same factor that, in comparison, the latter is almost insignificant.

Figure 3, based on data in the same report, serves to emphasize the fact that there is apparently little relation between father's earnings and neonatal mortality.

Employment of mother.—The question of the employment of the pregnant mother in its relation to infant mortality has been studied in various quarters. In an investigation made by the Children's Bureau (34), it was shown that employment of mothers away from home during pregnancy was associated with a high rate of premature births and excessive mortality among full-term babies from causes peculiar to early infancy.

In a study of data obtained in eight American cities by the Children's Bureau (46), the relation expressed in the table below was found to exist between deaths from causes of early infancy and the employment of the mother during pregnancy.

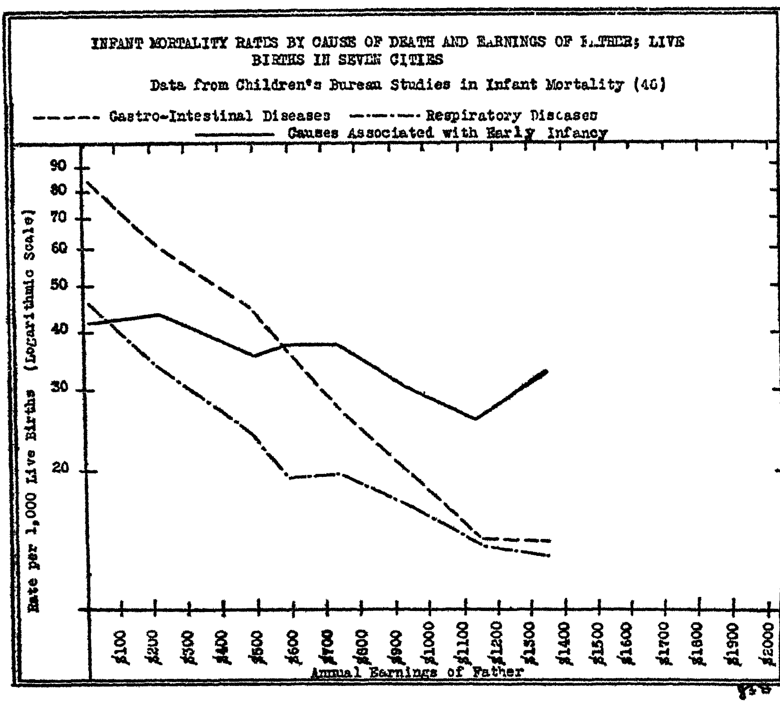

FIG 2

Infant mortality rates by cause of death and employment of mother during pregnancy (8 cities)

Employment of mother during pregnancy	Infant mortality rates		
	Early infancy	Neonatal mortality [1]	Prematurity (per cent of live births)
Employed away from home	50.3	62.8	6.1
Employed at home	27.2	34.8	3.5
Not employed	35.6	42.7	5.2

[1] For 7 cities.

This table brings out the fact that it is not the actual work done by the mother which is detrimental to the unborn child, but that any unfavorable effect which may be observed is due to conditions associated with employment *away from home.*

In a report of the Medical Research Committee in 1917 (36) it was stated that Dr. Jessie Duncan, in Birmingham, England, found that there was scarcely any difference in the weights of children whose mothers were industrially employed and those whose mothers

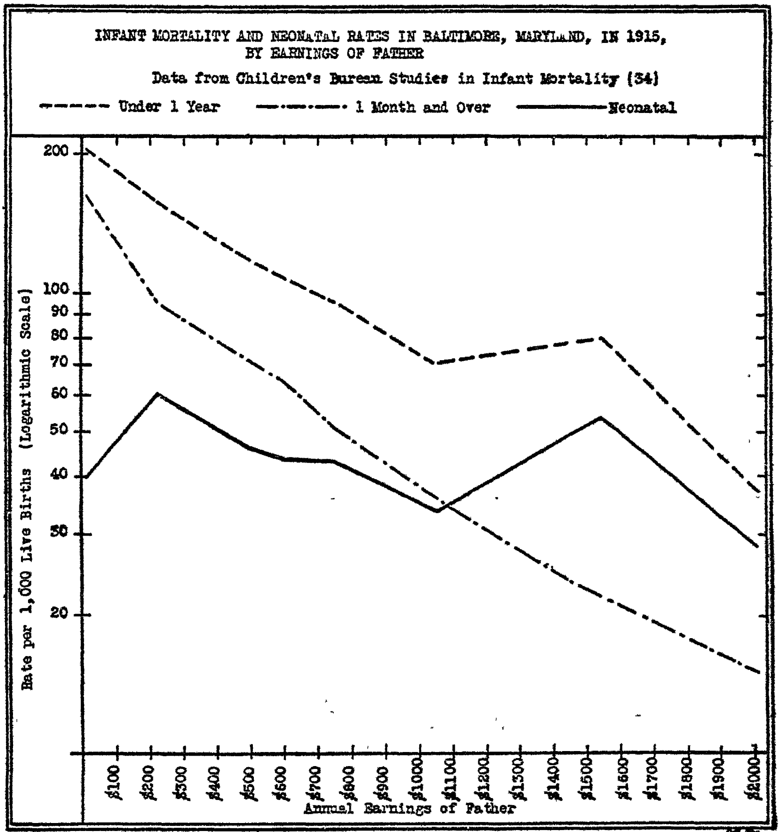

FIG. 3

were not. Whether female labor during the war affected the infant death rate is a rather difficult question. The British report states that it did not seem to cause a rise in Great Britain. In any event, the great influenza epidemic, with its tremendous influence on all death rates, would tend to obscure the trend.

It is noted that in localities where there is much employment, such as Lancashire, Staffordshire, West Riding of York, Gloucester, Berks, Oxford, and Hereford, the first three have a high rate and the last four a low rate; and in Glamorgan, Northumberland, Durham, and

Monmouth, where there is little employment, there is a high infant death rate. These facts suggest no correlation, but suggest even more strongly the need of a close comparison of other conditions in the same localities.

Miners' infants have a high rate, though miners' wives do not go out to work (43); but this simply eliminates one factor from the problem of mortality among miners' babies. The employment of the mother away from home after confinement would have little effect on neonatal mortality, since few mothers go out to work until after the first month following confinement.

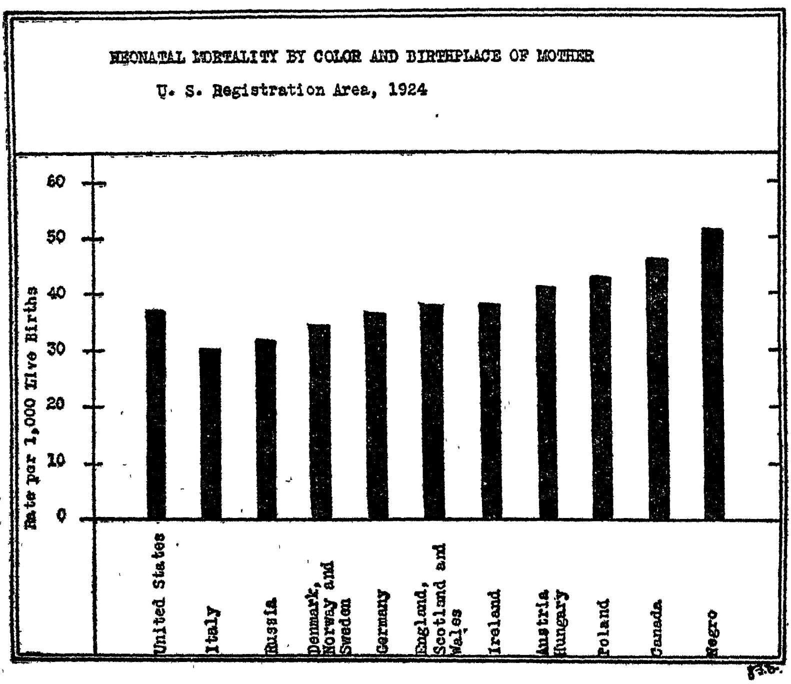

FIG. 4

Racial stock.—The evidence so far accumulated indicates that neonatal mortality is influenced by the nationality of the mother. This is undoubtedly a question of racial stock rather than of mere nationality. New York, in 1925, had the lowest infant mortality rate of any city of the million-population class in this country, and a Jewish population which is estimated to be one-third of the total population (47).

That these facts may be closely related is suggested by the well-known fact that the mortality among Jewish babies is noticeably low.

The accompanying table shows the infant mortality and neonatal rates of children born to native and certain foreign-born mothers in the birth registration area of the United States in 1924:

Infant mortality and neonatal mortality rates, by color and birthplace of mother, United States birth registration area, 1924

Color and birthplace of mother	Neonatal rate	Infant mortality rate	Color and birthplace of mother	Neonatal rate	Infant mortality rate
White mothers:			White mothers—Continued.		
United States	37.1	63.2	England, Scotland, and Wales	38.1	60.6
Italy	30.1	69.8	Ireland	38.6	69.3
Russia	31.7	55.7	Austria, Hungary	41.0	85.5
Denmark, Norway, and Sweden	34.6	57.8	Poland	43.0	92.1
Germany	36.5	64.0	Canada	46.5	80.1
			Negro	51.8	114.1

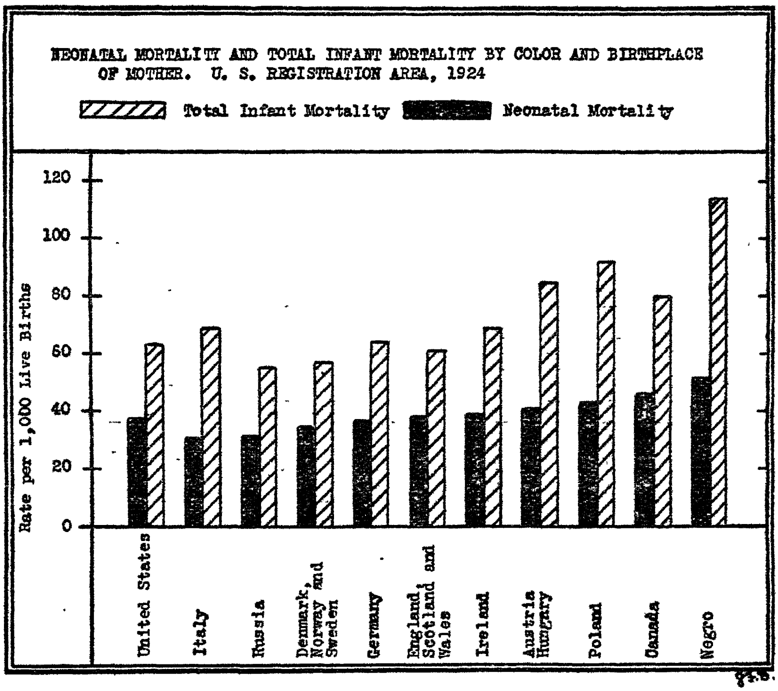

FIG. 5

These figures show that the neonatal mortality rates among four classes of foreign-born mothers fall below that of native white Americans, viz, the Italians, by 18.8 per cent; the Russians, by 14.5 per cent; the Scandinavians, by 6.7 per cent; and the Germans, by 1.6 per cent. This is shown graphically in Figure 4.

The low rates of the Italians and the Russians are particularly significant for this neonatal period. Figure 5 shows the relation between the neonatal rates and the total infant mortality rates in the same races.

The Scandinavians and the Russians maintain a low rate throughout infancy, but the Italians fall below the native white Americans in

later infancy, while the Germans have a total rate very similar to that of the native white.

In Eastman's article (48) quoted by Pearl (49), the mortality rates from premature birth, congenital debility, and malformation in New York State in 1916 are those given in the following table. While these rates would not be exactly identical with the neonatal rates, they would be an approximation thereto.

Rates for infant mortality from principal causes and by nativity of the mother, 1916, New York State (from Eastman)

Nativity of mother	Mortality rates from premature birth, congenital debility, and malformation	
Total mothers		42.8
Total white mothers		42.5
Total colored mothers		90.5
Total native white mothers		45.3
Total foreign white mothers		37.7
Italian mothers	31.0	
Russian mothers (excluding Russian Poland)	34.4	
Austro-Hungarian mothers (excluding Austrian Poland)	42.3	
Polish mothers (including German, Austrian, and Russian Poland)	36.3	
Total for group		35.0
British mothers	36.4	
Irish mothers	43.7	
German mothers	51.0	
Canadian mothers	48.2	
Other foreign-born mothers	45.4	
Total for group		45.3

Much of the Russian and Polish stock in New York is Jewish. The low rates of the Italian and Russian groups in Eastman's study show an even greater superiority over those of native white stock in the mortalities of early infancy than do those given by the Bureau of the Census. Pearl contends that "the fewer deaths from prematurity and congenital defects among the children of Italian and Slavic mothers indicate that superiority of innate biological constitution which is generally associated with emigrating stock." One fails to understand, however, why the mothers of the second group—the British, Irish, German, Canadian, and other foreign-born mothers—are not also of "emigrating stocks." If there is any "superiority of innate biological constitution" in this group, it fails to show itself in fewer deaths from prematurity and congenital defects. It is evidently necessary to seek further for the cause of the low rates found in the Italian and Slavic groups.

The illegitimate death rate is higher than the legitimate rate, and DePorte's (50) figures show that the illegitimate birth rates are lower for Italian and Russian infants than for any other nationalities.

Illegitimate births per 1,000 live births

White children, total	12.2	Ireland	9.8
United States	15.3	Germany	6.6
Austria	5.3	Italy	1.8
Hungary	5.2	Poland	4.4
Canada	10.5	Russia	2.5
Scandinavia	7.8	Negro	121.4
Great Britain	8.2		

Referring to employment, DePorte states that the foreign-born women are at a disadvantage. A greater proportion of them are married and nearly one-half of them work in manufacturing and mechanical industries (1920); of the latter, nearly one-half are textile workers, among whose children congenital malformations are said by Ashby (43) to be especially common. Yet, as has been shown, neonatal mortality is less among some of the foreign-born races. This is not only true of the year of the latest Census report, 1924, but is equally true of the six-year period 1916–1921. DePorte has reduced the figures of this period to an index and shows the relative mortality of children under one month of age of different racial stocks as compared to that of white children and children of native white mothers.

The following table is from DePorte's study:

Relative mortality of children under 1 month of age, 6-year period, 1916–1921, in the birth registration area of the United States

[United States rate=100]

Country of birth of mother	Rate	Country of birth of mother	Rate
White children, total	100	Ireland	110
United States	100	Germany	100
Austria	111	Italy	80
Hungary	94	Poland	119
Canada	120	Russia	82
Scandinavia	89	Negro children	136
Great Britain	99		

We see here again a marked difference in favor of the Italian and Russian infants in neonatal mortality. To quote DePorte: "The racial groups whose infants suffer more from environmental defects, suffer less from causes that are mainly dependent upon the child-bearing mechanism of the mother. Economic and social conditions have little effect upon this period of infant mortality. Here nature plays no favorites, and nonviable, malformed infants are equally frequent among the rich and the poor."

That the death rate in early infancy of children of native-born parents greatly exceeds that of the foreign element has been noted by Schwarz (51), who states, in addition, that the miscarriage rate is greatest when both parents are native born, and least when both parents are foreign-born. His colored group, as was to be expected,

shows the largest number of miscarriages, which he thinks is no doubt due to the great amount of syphilis among them.

In San Francisco, in 1919, Lezynsky and Brown (15) found that there was a slightly larger percentage of stillborn in full American parentage, but in neonatal mortality there was a slight percentage in favor of American parentage—47.04 per cent American, 48.67 per cent foreign parentage.

Levy (52), in 1922, commented on the fact that the lowest stillbirth and neonatal mortality rates at that time were found in foreign mothers whose economic, social, and housing conditions would naturally be held to be unfavorable.

Boston studies (53) indicate "somewhat unexpectedly" that infant mortality for native American, Jewish, and Italian mothers is virtually the same in Boston, and noticeably lower than that for foreign-born French, Scandinavian, or Irish mothers. This is a very significant statement and indicates conditions worthy of the closest study.

An analysis of the data accumulated by the Children's Bureau in its study of 8 cities (46) brings out the relative frequency of the various causes operating to produce the sum total of neonatal mortality. These are distributed as follows:

	Death rate first month of life		Death rate first month of life
All causes	44.8	Early infancy	30.3
Gastric and intestinal diseases	3.0	Epidemic and other communicable diseases	1.0
Respiratory diseases	2.9	Other causes	4.2
Malformations	3.3		

It will be seen that about 25 per cent of the total neonatal mortality is due to causes other than malformation and other conditions associated with early infancy. The susceptibility of the various races to these other causes, to methods of feeding, and to environmental conditions, is reflected in the difference between their death rates from causes associated with early infancy and their total neonatal rates as shown in the following table:

Infant mortality and nationality in 8 cities

Color and nationality of mother	Death rate from causes associated with early infancy	Neonatal mortality	Color and nationality of mother	Death rate from causes associated with early infancy	Neonatal mortality
Native white	36.1	41.5	Foreign-born—Continued.		
Foreign-born	33.7	45.9	Polish	38.7	52.1
Italian	33.7	46.3	Portuguese	20.9	40.4
Jewish	22.7	28.4	Other	35.8	49.6
French-Canadian	44.7	54.0	Colored	52.2	64.5
German	30.9	42.5			

In these studies the method of feeding the infant was ascertained, and it was found that the amount of artificial feeding varied with nationality of mother as follows:

	Per cent		Per cent
French-Canadian	44.0	Polish	11.1
Portuguese	31.9	Italian	13.1
Native white	28.3	German	21.5
Jewish	11.3	Colored	19.7

In some instances a high percentage of artificial feeding is associated with a high neonatal death rate, as in the case of the French-Canadians, and a low percentage with a low neonatal rate, as in the case of the Jewish infants. On the other hand, the Polish mother shows the smallest percentage of artificial feeding and next to the highest neonatal death rate among the whites. The colored mothers, likewise, have a comparatively low percentage of artificial feeding and a high neonatal death rate. These figures, however, have little meaning when taken alone, because of the many factors entering into the problem. In some instances, breast feeding may be able to overcome other adverse circumstances, while in others it is not sufficient to stem the adverse tide.

Ashby (43), in England, has noted the low rates among the Jews, and comments upon the remarkable fact that the Jewish people, living in the poorer parts of towns where there is overcrowding, defective housing, and a good deal of poverty, are able to rear and bring up their children better than non-Jewish people in more favorable circumstances. This is true both of Manchester, England, and of New York City.

Rural and urban environment.—The neonatal mortality rates for the last six years (1) in the birth registration area as of 1917 (exclusive of Rhode Island) are shown for both urban and rural areas in the accompanying table.

Neonatal mortality rates in the birth registration area of 1917 (exclusive of Rhode Island)

Age	1924	1923	1922	1921	1920	1919
Under 1 day:						
Urban	15.4	15.2	15.2	16.2	15.1	14.7
Rural	14.3	14.2	14.6	14.2	14.4	14.2
1 day:						
Urban	4.5	4.7	4.7	4.9	4.9	4.7
Rural	4.0	4.2	4.1	4.2	4.3	4.1
2 days:						
Urban	3.5	3.6	3.4	4.0	3.6	3.5
Rural	3.2	3.1	3.1	3.2	3.2	3.2
3 to 6 days:						
Urban	6.3	6.2	6.6	6.9	6.8	6.3
Rural	6.1	6.1	6.4	6.1	6.0	6.2
1 week:						
Urban	4.4	4.6	4.8	5.1	5.4	5.7
Rural	4.8	5.3	5.1	5.2	5.8	6.0
2 weeks:						
Urban	2.7	3.2	3.3	3.6	3.9	3.9
Rural	3.3	3.8	3.3	3.5	3.7	3.9
3 weeks:						
Urban	2.5	2.5	2.6	2.8	3.3	3.1
Rural	2.6	2.9	2.6	2.8	3.0	3.1
Under 1 month:						
Urban	39.2	39.9	40.6	43.4	42.9	41.9
Rural	38.1	39.7	30.4	39.0	39.9	40.7

It will be seen that the rural total neonatal rates are uniformly lower than the urban rates, and that the decrease in the six-year period has been only 0.06 per cent greater in the urban than in the rural area. This fractional per cent—six one-hundredths—is slight recompense for the far greater effort made along child welfare lines in urban communities. The decrease in rate in the urban area as compared with the decrease in rate in the rural area furnishes striking evidence of the existence of some factor, or factors, favorable to the rural infant which practically compensates for the excess of welfare work bestowed upon the urban infant. Stillbirths are also more numerous in urban communities. Pearl (40) states that "we are far from a scientific understanding of why rural communities exhibit a lower rate of mortality than urban communities" and thinks "it is probable that there is no definite or significant correlation between the rate of infant mortality and the density of population in American cities."

This disparity between urban and rural infant mortality is not confined to our own country. Brend (36), in the 1917 report of the Medical Research Committee, was of the opinion that probably the excess was due to "some factor or factors in industrial towns, the centers of large cities, and mining areas, of which possibly the most important is a polluted state of the atmosphere."

Levy (54), in 1915, expressed the opinion that the "high rates in industrial towns have no relation to size of city, congestion, nature of the population, general sanitation, water or milk supply, but are associated with the industries and certain standards of living accompanying them." It becomes evident that Pearl's frank acknowledgment of our ignorance in the matter is most timely.

Mode of delivery and the care and feeding of the new-born.—There is striking evidence, though the amount of data is not large, that neonatal mortality is influenced by the method of delivery of the pregnant woman. In Woodbury's study (46), the mortality from injuries at birth in instrumental deliveries was 28.1 as compared with 2.3 for normal births. In instrumental delivery there was 12.2 per cent of stillbirths as compared with 2.8 per cent in normal births. Banister (55) found that in 589 cases of induction of premature labor in the treatment of contracted pelvis there was a fetal mortality of 8.5 per cent when the delivery was unassisted. In 132 cases in which the delivery was completed by forceps, there was a fetal mortality of 23.4 per cent. In view of these figures, it might be worth while to inquire whether the more common use of forceps in city practice is related to the higher urban rates. In a recent English study (13) it was noted that a majority of the cases of intracranial lesions (tentorial tears) were associated with the use of forceps, or with the practice of podalic version.

The method of delivery in cases of eclampsia may be looked at from a rather different angle. In Greenhill's series (19) the fetal mortality was as follows: Spontaneous delivery, 30 per cent; abdominal caesarian section, 18 per cent; forceps, 10 per cent; version and extraction, 29 per cent; and vaginal caesarian section, 100 per cent. The high mortality in spontaneous deliveries may be due to the fact that the delay incurred in waiting for spontaneous birth permitted a too long exposure of the infant to the toxemia, and resulted in its death. In these cases the delivery by forceps gave the best results.

Since more than one-half of the neonatal mortality takes place in the first two days of life, the question of feeding has not been considered an important factor in this death rate. It has been found (46), however, that early artificial feeding appears to be especially hazardous.

Pirquet (37) criticizes the management of feeding in the neonatal period and comments on the fact that many do not allow the child to be put to the breast until 24 hours after birth. It is quite possible that a study of this particular phase of the question might furnish valuable data.

There can be no doubt that the care of the new-born should include special precautions to protect the infant from contagious and infectious diseases. This is especially true of the respiratory diseases. In the birth registration area in 1924 (1), 5.2 per cent of the neonatal deaths were due to diseases of the respiratory system, including influenza—a total of almost 4,000 deaths. This does not include the few cases of tuberculosis reported.

In Neale's study in New Zealand (4), 2.5 per cent of the neonatal mortality during the period 1920 to 1923 is attributed to respiratory diseases, including influenza. Pirquet's belief in the frequent occurrence of respiratory infections has already been mentioned (37).

However far-fetched his "apex" theory may appear to some, the fact remains that the indications contained in the data cited are corroborated by other findings. Rochester (34) found that the hazard for the respiratory diseases was highest during the first month of life, and Adair (39) states that pulmonary infections are not an infrequent cause of neonatal death. A striking fact observed in this study of the literature is the very small amount of tuberculosis noted.

In a recent study by Holland and Lane-Claypon for the British Medical Research Council (13), infection played a large part in one series of 97 neonatal deaths; pulmonary conditions, 62; sepsis and enteritis, 16; nephritis, 9; other conditions, 10.

Age of mother, order of birth, and legitimacy.—The age of the mother at the time of birth of the child is apparently related to the early

loss of infant life. The following data from the Bureau of the Census show the relation of the age of the mother to stillbirth:

Age of mother (years)	Stillbirth (per cent)
10–14	8 66
15–19	4 28
20–24	3 31
25–29	3 25
30–34	3 94
35–39	5 16
40–44	6 38
45–49	8 72
50–54	12 24

It will be seen that the very young mothers have a high rate, which decreases up to the twenty-ninth year. For the next five years the rate remains practically stationary, and then rises steadily till at 50 and upward it is almost four times the minimum at 25–29 years. In the Baltimore study it was noted that these rates varied less markedly in the deaths from early infancy.

In the Woodbury study (46) it was found that neonatal mortality was highest among infants of mothers under 20 and of mothers 40 years of age and over. In Gary, Ind. (32), mothers under 20 or 40 and over had a higher rate of premature births than mothers in the twenties or thirties; and in Baltimore (34) also premature births were most prevalent among the youngest mothers. It was noted, too, that children born after a short interval between births had a higher mortality rate than those born after a longer interval. With one-year interval the neonatal mortality rate was 51; with a two-year interval, 37; with three-year interval, 37; and with four years or more, 38. Premature births were more common after the shorter intervals (46). Whether or not there is, as Pearson held, a "handicap of the first born" is a disputed question.

It is everywhere conceded that illegitimate children have a higher death rate than those born in wedlock. In the birth registration area in 1923 the respective rates are as follows: Legitimate, 3.8 per 100 births; illegitimate, 8 2 per 100 births.

A high percentage of premature births has been noted among the illegitimate, as well as a high rate from causes associated with early infancy. Unless prohibited by law (as in Maryland), many illegitimate infants are separated from their mothers at a very early period, which always results in a high rate of mortality. The death rate for syphilis in illegitimate infants is eight times as great as that of legitimate infants (56).

In one study (34), 45 per cent of the mothers of illegitimate infants were under 20; the majority were first births; far more of the births occurred in hospitals; there was much employment outside the home; and there was a slightly higher percentage of illiteracy.

Literacy and habits.—The literacy of the parents would not of itself have any effect on infant mortality, but might be some indication of the intelligence used in caring for the pregnant mother and her new-born infant.

Schwarz (51) found that, in 358 literate families, there was an infant mortality rate of 111 per 1,000 births; and in 113 illiterate families there was an infant mortality rate of 172 per 1,000 births. In Baltimore (34) it was noted that Italian and Polish mothers who could speak English were more likely to wean their babies during the early months than the Italian and Polish mothers who had not learned to speak English; while exactly the reverse was true of the Jewish mothers. More of the Polish mothers who could read and write than of the illiterate Polish mothers were weaning the babies during the early months, while Italian and Jewish mothers used less artificial feeding when the mothers could read and write than when they were illiterate.

There is a small amount of data relating to the mortality of children in relation to the habits of the parents with respect to indulgence in alcoholic drinks. Juillerat (57) reports a study of 879 children, of whom 305 children of 141 families of moderate drinkers showed a mortality of 19 per cent; 248 children of 108 families of decided drinkers showed a mortality of 26 per cent; and 326 children of 147 families of very decided drinkers showed a mortality of 55 per cent. It is not known what percentage of these children died during the neonatal period. A study of a more definite character is that of Sullivan (58), which shows that of 600 children born to 120 women of marked alcoholic habits, 335, or 56 per cent, were stillborn or died within the first two years. Of 138 children of 28 relatives of these women, where both husband and wife were sober, only 24 per cent died during the first two years.

Since in neither of these instances are other factors known which undoubtedly had some influence on this child mortality, nothing definite can be deduced from the figures. It is not to be expected that a mother of marked alcoholic habit will give her baby the care that an infant requires. This alone would tend to increase the infant mortality.

Out of the foregoing mass of data and divergent views of various investigators, a few facts stand out clearly:

(1) That the most important causes of fetal and neonatal mortality are dystocia (including complications of labor and birth trauma), prematurity, malformation, toxemia, syphilis, other infections, and congenital debility—and the greatest of these is dystocia.

(2) That the actual relationship of many factors associated with infant mortality is more or less an unknown quantity.

A brief consideration of the more important causes of neonatal mortality, with a view to the possibility of prevention, seems worth while.

The complications of labor with the trauma so often associated therewith have been shown to be of paramount importance. In the birth registration area (1) in the six-year period from 1919 to 1924, there has been an increase in the mortality rate from injuries at birth from 3.4 to 4.8. Even with prenatal care, such as was given by the Maternity Center Association of New York in 1919 and 1921, no reduction was effected in the number of deaths from birth injury (59). Brain injuries occur not only in pathologic labors and those artificially terminated, but in so-called normal labors as well.

In the recent British report of Holland and Lane-Claypon (13), of the 465 deaths due to the complications of labor, the distribution of causes is as follows:

Cause	Per cent	Cause	Per cent
Contracted pelvis	37. 6	Umbilical cord complication	8 8
Abnormal presentation	30. 5	Other complications	6. 0
Difficult or prolonged labor (due to other causes)	12. 5	Normal labor	4. 5

The obstetrician must be able not only successfully to cope with pathological emergencies, but must recognize the dangers of parturition in the many variations of spontaneous delivery. Contracted and malformed pelvis must be carefully studied. Prolonged labors, and violent though short labors, may result in serious injury. Ford (60) mentions, in addition, the liability to birth injury accompanying rigid soft parts and overlarge fetal heads, and calls attention to the fact that prematurity may be a contributing cause of intracranial hemorrhage probably because of abnormally fragile blood vessels and the thinness of the premature infant's skull.

No good is accomplished by the assertion that all mortality from birth trauma is due to ignorant and poorly trained doctors and midwives. It is true that much better training in obstetrics is needed, but the root of the matter lies deeper than this. We need a more intimate and widely dispersed knowledge of the significance of all the factors associated with childbirth, from which may be adduced efficient measures for their control. In a recent study by Friedman (61) there is some evidence that a controlled diet resulted in a marked decrease in the length of the first stage of labor, with coincident diminution in the number of operative deliveries; and in a slight but definite decrease in the weight of the baby with less likelihood of birth injury. It is plain that not only must we have better obstetrics, as we now know the subject, but that

our knowledge must be broadened by research, which should include a close study of maternal health.

Though modern research work has stripped prematurity of much of its importance as a cause of neonatal death, it still has something to answer for. In a large proportion of the cases, the exciting cause of the premature birth is the factor at fault. Hess (62) ascribed the following causes as etiological factors predisposing to premature birth: Overwork, anxiety, trauma, improper hygiene, insufficient and improperly balanced diet, syphilis, nephritis, acute illness, constitutional defects and congenital malformation in the fetus, placenta praevia, operations, tuberculosis, heart diseases, exophthalmic goiter, anomalous positions of the fetus, multiple pregnancy, diabetes, pernicious anemia and leukemia, and drug intoxications.

Woodbury (46) found that the neonatal mortality rate for premature infants was 440 as compared with 24 for the full-term infants; and that social and economic factors are of relatively little importance in explaining the high mortality among premature infants. The total mortality among premature infants was found to be five or six times as high as that among full-term babies. It will be seen at once that these deaths are those which are likely to be reduced by prenatal care; and this is seen to be the case. In the Maternity Center cases, premature births were reduced to 4.8 as compared to 14.7 in New York City as a whole. In Boston (63), prenatal care reduced the stillbirth rate almost 45 per cent and the infant mortality rate almost 60 per cent.

Of the cause or causes of congenital debility and malformation we know very little. These rates change but little, and we do not know whether that little change is merely a chance variation or the result of some unknown cause. Schlapp (64) thinks that certain malformations in the child are due to some prenatal pathological condition in the mother, such as a chemical imbalance in the blood, the toxic effect of certain drugs, as morphine or alcohol, and disturbances of the ductless glands. In our present state of knowledge, these can be little more than conjectures.

While the prevalence of syphilis among women of the child-bearing age and its effect upon fetal and neonatal mortality is a matter of much importance, it is one that can (at least theoretically) be handled with a high degree of success. The incidence of the infection is probably between 9 and 18 per cent in the white race and very much higher among negroes. Though the diagnosis of syphilis in the pregnant woman may often be difficult, with efficient medical prenatal treatment the incidence of congenital syphilis can be remarkably lowered. Williams (65) states that with no treatment 48.5 per cent of the children showed signs of syphilis; with inefficient treatment, 39.2 per cent; and with efficient treatment, only 6.7 per cent of the

children gave evidence of syphilitic infection. Gebhart (66) also reports good results; and Watson, of the Glasgow Lock Hospital (67), states: "In no case in which the mother attended sufficiently early to undergo a full course of '914' injections was there a stillbirth or death of an infant. For this purpose a period of at least two months before full-time is required. There is no department of our work which gives so much satisfaction to the staff in the excellent results achieved as the treatment of pregnant women."

Sharpe (68) states that in the present state of medical knowledge it is unnecessary for any child to be born syphilitic, provided diagnosis is made sufficiently early during the pregnancy of the mother.

The incidence of congenital syphilis in the infant population is probably not as great as is commonly thought. Of 12,180 admissions to the Babies Hospital, New York City, there were 193 cases of congenital syphilis (69). This percentage of 1.58 is probably lower than in the general population.

The toxemias of pregnancy rank third or fourth in the causation of fetal and neonatal death. While the value of prenatal care in these cases is recognized, it must be acknowledged that not all cases of eclampsia are preventable in our present state of knowledge (19). In Greenhill's series of 78 patients, 18 per cent had good prenatal care and yet developed eclampsia. Davis and Harrar (20) state that while improvement has taken place in antepartum and intrapartum eclampsia, there has been no such improvement in post-partum eclampsia.

Conclusions

(1) That fetal and neonatal mortality is the greatest problem in infant mortality. No other field of public-health work requires more intensive study.

(2) That early infant mortality varies with racial stock for reasons as yet unknown.

(3) That syphilis is the only cause of which we have sufficient knowledge to hope for complete success in prevention.

(4) That the paramount importance of birth injury renders imperative Holland's statement that we must learn how to reduce the occasions for interference with natural birth.

(5) That infections in the newborn should be made the subject of special study.

It is only by the concentration of greater effort on the part of many agencies, both official and voluntary, that we can hope for a solution of these problems. At present we must agree with the Boston writer (53) that "the solution of the infant mortality problem calls for something besides appropriations for intensive child-welfare work. We should honestly face the probability that unknown

factors are affecting the value of much of our infant and child welfare work."

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CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED JANUARY 15, 1927, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT [1]

Plague.—Little change in the world prevalence of plague was indicated by the reports from the various countries received by the health section of the League of Nations' secretariat during the month prior to the publication of the Epidemiological Report of January 15. The situation was very favorable in the Far East; cases occurred during December at only a few of the maritime towns, namely, Rangoon, Colombo, Surabaya, and Makassar.

There were no serious outbreaks of plague in Egypt during 1926, and only three cases were reported during December.

The plague outbreak at Sfax in Tunisia in November appeared to decline rapidly in December. The total number of cases in Tunisia in 1926 amounted to 424, an exceptional number, as in previous years there had been only sporadic cases or small isolated outbreaks.

TABLE 1.—*Plague cases reported in Tunis, by districts, 1926*

Month	Kairwan	Sfax	Susa	Kef	Tunis	Military territories
May	69	1	0	0	0	0
June	88	0	14	2	0	0
July	6	0	5	0	1	0
August	1	0	0	0	0	0
November	0	188	0	0	0	6
December	0	37	6	0	0	0
Total	164	226	25	2	1	6

At Oran, Algeria, 7 cases of plague were reported in the first 10 days of December, as compared with 25 in the last 10 days of November. No new case was reported between December 11 and 20.

An increase in plague incidence occurred in Senegal in November, when 64 cases were reported in the district of Diourbel and 5 in Rufisque, as compared with 27 in the Diourbel district in October. A further increase occurred in Southern Nigeria in October, and 373 cases were reported as against 305 in the preceding month. In Madagascar, 280 cases were reported in November as compared with 228 in the corresponding month of the preceding year. There were 150 cases reported in the first half of December.

Only sporadic cases of plague were reported in the Union of South Africa; 4 during November and 18 during December.

Cholera.—The cholera situation in the Far East was less favorable at the close of 1926 than the plague situation. The number of cases in Tonkin Province of French Indo-China increased markedly during November and December.

[1] From the Office of Statistical Investigations.

TABLE 2.—*Cholera cases reported in French Indo-China November 1 to December 30, 1926*

10 days ended—	Cambodia	Cochin-China	Laos	Annam	Tonkin
Nov. 10	0	3	0	38	265
20	7	1	0	144	318
30	21	2	0	90	409
Dec. 10	16	9	0	76	664
20	4	12	0	54	1,056
31	15	30	0	70	871

The port of Haiphong in Tonkin was seriously infected in December, 243 deaths occurring in the last two weeks of that month. The disease was also prevalent in Calcutta and continuously present in Bangkok, Singapore, Tourane, Rangoon, and Nagapatam.

TABLE 3.—*Cholera reported in the principal maritime towns of the Far East from November 28 to January 1, 1927*

Maritime town	Week ended— December 4	December 11	December 18	December 25	January 1
Tuticorin (deaths)	1	0	0	0	0
Nagapatam (deaths)	3	2	9	1	9
Madras (deaths)	0	0	0	0	2
Calcutta (deaths)	31	62	51	62	53
Rangoon (deaths)	2	0	1	1	4
Singapore (cases)	2	2	5	3	1
Bangkok (cases)	1	2	1	4	2
Saigon (cases)	0	1	0	0	0
Tourane (cases)	5	9	8	13	1
Haiphong (deaths)	15	13	66	200	43

The cholera outbreak in Korea, which began early in September, came to an end the middle of October; 252 cases were reported. The outbreak was restricted to North Heian Province, with the exception of the district of Heigen in South Heian Province. The Report states that "267,200 doses of anticholera vaccine were distributed free of charge before the outbreak and 745,920 after the outbreak had begun. About 60 per cent of this vaccine was employed in the two infected Provinces."

Yellow fever.—Yellow fever was reported as follows: Seven cases in Senegal between December 14 and January 3; one on December 15 at Segou, in the French Sudan.

Typhus fever.—The typhus incidence in Rumania increased in November, when 145 cases were reported, as against 42 in the preceding month and 39 in the corresponding month of 1925.

In Poland, the incidence was about the same as in 1925; 170 cases were reported during the four weeks ended December 11, 1926, as against 161 in the corresponding period of the preceding year.

Relapsing fever.—Further information on the relapsing fever epidemic in Darfur, previously reported, is as follows:

An outbreak of relapsing fever was first reported from Kebkebia on September 11, 1926, and a similar outbreak was reported from Nyala on September 12, 1926. A provisional diagnosis of relapsing fever was made, which was confirmed microscopically on September 28. By October 1, investigation had shown that the epidemic was affecting Zalingei, Western Nyala, South Masalit, and Kebkebia districts, an area of 20,000 square miles. Up to the end of November, no further extension of the area affected had been reported.

The case mortality in untreated cases is reported as being 60 to 80 per cent, but this is perhaps too high a figure, as many milder cases of the disease probably remain unreported. Cases treated with neoarsenobenzol usually recover.

In the areas in which it has been possible to collect statistics, the proportion of deaths to the total population averages 22.9 per cent; actually, 2,092 deaths had occurred in a population of 9,105.

It was reported on December 19 that 6,000 deaths had occurred in the Zalingei district (Western Darfur) since the beginning of the outbreak.

Smallpox.—Smallpox continued prevalent in the northern counties of England during December. There were 1,287 cases reported during the four weeks ended January 1, 1927, as against 1,200 during the preceding four weeks and 705 in the corresponding period of the preceding year.

In Spain the number of deaths from smallpox decreased very markedly; only nine deaths were reported in the third quarter, as compared with 123 and 350, respectively, in the corresponding periods of 1925 and 1924.

In Iraq fairly extensive outbreaks occurred in October, but the November reports showed a decrease in nearly all districts. There were 89 cases reported during the four weeks ended November 27, as compared with 374 during the preceding four weeks.

The outbreak of severe smallpox at Rio de Janeiro, referred to in the report last month, began to decline in October; there were 279 cases and 187 deaths reported during the four weeks ended November 13, as against 500 cases and 307 deaths during the preceding four weeks. The total number of deaths from smallpox since the beginning of 1926 was 2,083.

Lethargic encephalitis.—The incidence of lethargic encephalitis had shown no marked seasonal increase at the end of 1926 in any of the countries where its notification is compulsory. In England and Wales, as usual, the highest number of cases were reported. The seasonal fluctuation in this country has been very slight; the highest incidence was in February, with 212 cases, and the lowest in the four weeks ended September 11, with 135 cases.

Japan reported an outbreak of lethargic encephalitis in the period from August to October. The following information concerning it is given in the Monthly Epidemiological Report:

The geographical distribution of the cases was very similar to that of the much larger epidemic which occurred during the same months of 1924. The highest incidence was found, as then, in the Provinces around the Inland Sea and particularly in Kagawa, Okayama, and Tottori; but, while the case incidence in these three Provinces in 1924 varied from 100 to 310 per 100,000 inhabitants, it was only from 13 to 15 per 100,000 during the recent outbreak. It appears that the Provinces farther east and north have not been affected by the epidemic.

Influenza.—The information on influenza summarized in the Monthly Epidemiological Report has already been made available through special bulletins which have been published in Public Health Reports.

Epidemic diseases in China.—Reports from hospitals and practitioners in the various Provinces of China on the prevalence of communicable diseases in China during August are summarized in the report. Plague appeared to be less prevalent in southern China during August than during June and July. Rat plague was reported from the interior Province of Szechuan. Cholera was extremely prevalent in the whole of China, with the exception of Yannan and Kansu, both interior Provinces.

Outbreaks of dysentery were reported from nearly all the Provinces, and typhoid fever was also prevalent in most Provinces, although apparently less so than dysentery.

Influenza was reported as epidemic in the two interior Provinces of Hupeh and Kansu, and reported prevalent in most of the other Provinces. No information is available on the mortality caused in any of the Provinces.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for January, 1927

The accompanying table is taken from the Statistical Bulletin for February, 1927, published by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company for January, 1927, as compared with January, 1926, and with December and year, 1926. The rates are based on the records of approximately 17,000,000 insured persons in the industrial populations of the United States and Canada.

Health conditions, as revealed by the death rates, were remarkably good in this group of persons during January, the gross death rate being 9.3 as compared with 9.8 for January of last year. Declines from the death rates of a year ago are shown for pneumonia, tuberculosis, typhoid fever, measles, scarlet fever, heart disease, cerebral hemorrhage, Bright's disease, diarrheal complaints, and puerperal conditions.

The most unfavorable item in the record for January, 1927, is the increase in the diphtheria death rate. A slight increase is also shown for whooping cough, and the death rate for cancer is higher than it was a year ago.

Death rates (annual basis) for principal causes per 100,000 lives exposed, January, 1927, and January, December, and year, 1926

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rate per 100,000 lives exposed [1]			
	January 1927	December, 1926	January, 1926	Year 1926 [2]
Total, all causes	928.2	918.6	981.2	912.7
Typhoid fever	2.4	4.0	3.9	4.2
Measles	3.6	3.3	9.5	10.2
Scarlet fever	3.0	2.4	4.0	3.4
Whooping cough	6.9	5.7	6.6	9.6
Diphtheria	13.6	15.3	11.2	9.7
Influenza	26.1	18.4	27.1	31.0
Tuberculosis (all forms)	80.2	88.4	91.0	98.7
Tuberculosis of respiratory system	69.2	78.9	81.4	86.5
Cancer	72.7	77.2	69.7	73.5
Diabetes mellitus	17.1	19.9	17.6	16.7
Cerebral hemorrhage	57.8	53.9	60.0	55.5
Organic diseases of heart	146.5	137.7	147.0	133.9
Pneumonia (all forms)	118.5	95.9	138.0	97.9
Other respiratory diseases	14.9	15.0	15.9	13.1
Diarrhea and enteritis	14.1	17.1	17.0	29.8
Bright's disease (chronic nephritis)	72.3	76.8	74.8	73.3
Puerperal state	13.8	12.6	14.3	15.3
Suicides	7.6	7.3	7.5	7.6
Homicides	5.8	7.2	7.2	7.0
Other external causes (excluding suicides and homicides)	61.8	61.3	59.2	62.2
Traumatism by automobiles	12.8	14.1	13.6	16.7
All other causes	189.5	199.3	199.6	190.4

[1] All figures include infants insured under 1 year of age.
[2] Based on provisional estimate of lives exposed to risk in 1926.

DIVISION OF VENEREAL DISEASES, JULY 1–DECEMBER 31, 1926

The accompanying tables present a statistical report of the medical work of the division of venereal diseases during the six months ended December 31, 1926, summarizing the activities of the venereal disease clinics and showing the number of cases of venereal diseases reported to the State boards of health during that period.

As shown in Table 1 there were 52,033 new cases of venereal disease admitted to the 410 clinics reporting. Of this number, 55.5 per cent were of syphilis, 41.9 per cent of gonorrhea, and 2.6 per cent of chancroid. There were 1,044,961 treatments given, including 251,859 doses of arsphenamine administered; 164,568 Wassermann tests were made; and 93,536 examinations were made for gonococcus infection. The clinics also report 24,191 patients discharged as noninfectious. This represents 46.5 per cent of the new admissions to these clinics. An average of 20 antivenereal treatments was given to each new patient admitted to the clinics. For each case of syphilis admitted, an average of 8.7 doses of the arsphenamines was administered.

The summary of the 40 States given in Table 2 shows that there were 173,027 new cases of venereal disease reported to the State boards of health—syphilis, 53.2 per cent; gonorrhea, 45.2 per cent; and chancroid, 1.6 per cent.

Compared with the same period in 1925, this year's report shows a decrease in all activities excepting in the number of doses of

arsphenamines administered and the number of Wassermann tests made. This general decrease is due to the fact that Florida, South Carolina, and Texas, which reported for the six-months period in 1925, have not reported in 1926. Also during the period covered, no reports were received from Arizona, District of Columbia, Montana, Oklahoma, and Utah. Among the 39 States reporting, Illinois takes first place in the number of patients admitted to clinics, the number of treatments given, and the number of laboratory examinations (Wassermann tests and microscopic examinations for the gonococcus). Alabama reported the largest number of patients discharged as noninfectious.

TABLE 1.—*Summary of reports of venereal-disease clinics reporting to State boards of health, for the six months, July 1–December 31, 1926* [1]

State	Number of clinics reporting	Number of reports received	Patients admitted: Total	Patients admitted: Syphilis	Patients admitted: Gonorrhea	Patients admitted: Chancroid	Patients discharged as noninfectious	Treatments given	Doses of arsphenamine given	Wassermann tests made	Microscopic examinations (gonococcus)
United States	410	2,323	52,033	28,859	21,792	1,382	24,191	1,044,961	251,859	164,568	93,536
Alabama	14	81	5,016	3,685	1,225	106	3,194	57,634	21,312	7,853	1,061
Arizona [2]											
Arkansas	9	50	2,082	1,468	607	7	1,875	42,029	8,928	5,211	1,658
California	13	76	2,948	1,792	1,131	25	525	55,783	23,445	11,711	2,480
Colorado	5	30	337	121	213	3	251	8,188	1,189	639	873
Connecticut	7	37	426	166	249	11	281	9,532	2,136	819	946
Delaware	3	13	118	63	44	11	58	1,665	889	183	120
District of Columbia [3]											
Florida [3]											
Georgia	6	36	1,334	1,035	285	14	118	18,351	6,600	5,824	273
Idaho [2]											
Illinois	22	130	6,361	2,576	3,596	189	3,009	169,386	26,243	27,032	24,349
Indiana	20	116	2,175	1,018	1,078	79	793	61,853	17,239	3,881	2,145
Iowa [4]											
Kansas	6	29	408	219	186	3	327	29,790	3,886	1,517	1,518
Kentucky	15	75	2,762	1,380	1,259	123	1,436	25,284	7,315	3,453	708
Louisiana	2	12	784	416	362	6	769	8,128	3,413	2,059	1,691
Maine	4	22	100	39	57	4	100	2,287	935	283	188
Maryland	15	81	1,268	521	714	33	482	28,909	7,057	1,752	1,882
Massachusetts [4]											
Michigan	14	82	3,376	1,622	1,728	26	470	66,592	10,165	15,903	14,023
Minnesota	4	23	544	219	323	2	300	11,930	3,475	1,379	679
Mississippi	1	6	148	117	29	2	62	962	565	94	64
Missouri	17	94	1,617	1,153	451	13	423	43,013	5,237	3,899	1,432
Montana [3]											
Nebraska	5	30	507	231	269	7	232	17,033	3,935	2,325	2,859
Nevada [3]											
New Hampshire	4	23	57	27	30		18	4,021	1,056	248	112
New Jersey	19	108	1,146	664	480	2	440	27,155	6,556	3,527	1,240
New Mexico [4]											
New York	51	291	3,282	1,962	1,257	63	2,736	78,439	23,600	7,215	3,445
North Carolina	3	15	503	377	126		138	2,443	1,597	537	55
North Dakota	1	6	7	4	3		3	143	21	17	100
Ohio	49	290	5,926	3,109	2,552	265	2,253	115,689	25,420	20,816	10,248
Oklahoma [3]											
Oregon	1	6	175	97	78			3,060	655	353	392
Pennsylvania	45	255	2,723	1,368	1,297	58	1,903	78,157	12,909	5,916	2,653
Rhode Island	7	42	266	135	131		77	6,344	2,480	2,601	1,906
South Carolina [3]											
South Dakota [4]											
Tennessee	12	65	2,335	1,336	736	263	1,090	34,085	10,257	11,621	2,469
Texas [3]											
Utah [3]											
Vermont [4]											
Virginia	8	48	1,055	750	282	23	87	8,848	5,622	5,264	1,257
Washington	3	18	604	315	287	2	378	11,080	1,912	4,401	6,591
West Virginia	11	52	799	452	321	26	181	9,311	3,509	1,588	1,199
Wisconsin	13	78	842	422	404	16	182	7,741	2,896	4,637	3,209
Wyoming [5]	1	3	2		2			87	2	10	11

[1] Includes reports of correctional and penal institutions.
[2] No clinics.
[3] Not reporting.
[4] Clinics not reporting.
[5] For 3 months only.

TABLE 2.—*Cases of venereal diseases reported to State boards of health for the six months, July 1–December 31, 1926*

State	Total	Syphilis	Gonorrhea	Chancroid
United States	173,027	92,092	78,194	2,741
Alabama	7,583	4,727	2,667	189
Arizona [1]				
Arkansas	2,353	1,515	799	9
California	8,701	4,879	3,799	23
Colorado	1,000	225	757	18
Connecticut	1,137	447	689	1
Delaware	291	63	181	47
District of Columbia [1]				
Florida [1]				
Georgia	4,951	2,619	2,153	179
Idaho	191	46	144	1
Illinois	18,148	6,596	11,290	262
Indiana	2,215	1,152	991	72
Iowa	1,530	528	999	3
Kansas	716	280	435	1
Kentucky	20,523	14,588	5,691	244
Louisiana	3,039	1,677	1,211	121
Maine	381	89	288	4
Maryland	3,487	1,831	1,559	97
Massachusetts	3,562	897	2,665	
Michigan	13,016	7,360	5,598	58
Minnesota	5,318	2,305	3,013	30
Mississippi	19,561	7,630	11,931	
Missouri	3,538	1,767	1,408	363
Montana [1]				
Nebraska	1,598	407	1,162	29
Nevada [1]				
New Hampshire	187	80	106	1
New Jersey	4,304	2,612	1,662	30
New Mexico	153	45	104	4
New York	20,933	15,695	5,172	66
North Carolina	1,907	1,057	787	63
North Dakota	567	112	452	3
Ohio	5,926	3,109	2,552	265
Oklahoma [1]				
Oregon	889	224	648	17
Pennsylvania	2,723	1,368	1,297	58
Rhode Island	523	164	359	
South Carolina [1]				
South Dakota	351	64	283	4
Tennessee	3,018	1,615	1,100	303
Texas [1]				
Utah [1]				
Vermont	558	311	244	
Virginia	1,184	768	391	25
Washington	1,400	559	813	28
West Virginia	3,753	2,181	1,487	85
Wisconsin	1,780	467	1,275	38
Wyoming [2]	2		2	

[1] Not reporting. [2] For 3 months only.

PUBLIC HEALTH ENGINEERING ABSTRACTS

California practice of garbage disposal by hog feeding. W. T. Knowlton. Proceedings American Society of Civil Engineers, October, 1926, pp. 1660–1661. (Abstract by L. D. Mars.)

This article gives the methods used in the disposal of garbage on a large scale by hog feeding. The city collects the garbage and it is loaded upon gondola cars and shipped to the hog range 55 miles distant. The city receives $0.60 per ton for the garbage, which amounted to some 371 tons per day in 1925. The magnitude of the enterprise can be judged from the fact that 110 men are required to operate the hog ranch.

Norwalk, Conn., finds it pays to use motor trucks for refuse collections. C. P. Shattuck. *American City*, vol. 35, No. 5, November, 1926, pp. 631–632. (Abstract by A. L. Dopmeyer.)

Garbage in this town of 35,000 is collected by four motor trucks and removed to a dump, where it is covered over with ashes and cinders. About twice as much garbage is hauled daily with the motor trucks as was hauled previously with horse-drawn vehicles. Some details of the cost of operation are also given.

Administrative and engineering work in the collection and disposal of garbage. A review of the problem. Samuel A. Greeley. Proceedings of the American Society of Civil Engineers, October, 1926, pp. 1642–1678. (Abstract by L. D. Mars.)

This paper describes briefly some of the administrative and engineering problems in projects for the collection and disposal of garbage. Technical literature occasionally states that the disposal of garbage has not kept pace with other sanitary engineering works. Such statements are generally coupled with the suggestion that closer adherence to competent technical guidance would greatly improve the results. This is a sound suggestion. Some of the troubles are inherent in the situation and will yield finally only to general public opinion.

The paper outlines relative costs for garbage collection and disposal and other sanitary engineering works. Typical procedures for the acquisition of garbage-disposal plants are discussed, recent contracts and specifications are outlined, and engineering items in garbage disposal are listed.

San Francisco makes fills with residue from destructor. Anon. *Engineering News Record*, vol. 97, No. 12, September 16, 1926, pp. 469–470. (Abstract by E. C. Sullivan.)

This article deals with the present methods of refuse disposal in San Francisco. Except for the segregation of garbage by hotels and restaurants, all refuse is collected by private scavengers whose only responsibility to the city is in the form of a permit which gives the board of health control over sanitary conditions. The scavengers are paid direct by the householders, based upon an elaborate schedule formulated and approved by the city authorities. A total of about 600 tons of refuse is collected daily by the scavengers, and, in addition, hog raisers buy and collect from the hotels and restaurants about 125 to 130 tons of garbage each day.

The 600 tons of refuse collected by the scavengers are delivered to the Thackeray destructor, now about 30 years old, which has a capacity of 400 tons per 24 hours. Since there consequently is extreme congestion at the plant, 500 tons are crowded through the destructor, about 25 per cent of which comes out partly unburned. About 100 tons of the refuse is burned daily at the destructor yard.

Due to the greatly overloaded condition of the old destructor and its consequent inefficiency, constituting a neighborhood nuisance, there is vigorous agitation at present for some better disposal system, and the board of supervisors is giving the matter attention.

The ashes, unburned garbage, etc., amounting to 250 to 270 tons per day, including 15 to 20 tons of ashes and material burned in the yard, are hauled away in railroad cars and used to fill lowlands along the railroad track on the bay shore south of the city. The railroad makes a switching charge of $2 per car for hauling a 9-car train daily, having a capacity of 28 to 30 tons per car, from the destructor to the fills, some 5 or 6 miles distant.

The contents of the cars are loaded into dump carts and delivered to the point where the face of the fill is being extended. The preferred method of loading the dump carts is to rake the refuse down into the cart from the car. It usually takes a crew of 10 or 12 men on the dump working 8 to 10 hours per day to take care of the daily delivery from the destructor. The number of horse carts ranges from 7 to 10. The cost of the railroad switching charge and horses and carts averages $750 per month. Only residue from the destructor is used in making the fills and no complaint of any nuisance in connection with the fills has been made. The present fill is about 15 acres in area and averages 6 feet deep.

Each scavenger pays $1 per ton for all refuse delivered to the destructor. This payment goes to the Scavenger's Protective Union, which operates the plant and is charged with the responsibility of effecting sanitary disposal within this price. As recently the costs have somewhat exceeded the rate, the scavengers may have to charge a little more per ton for disposal.

Recent developments in sewage chlorination. L. H. Enslow, sanitary engineer, the Chlorine Institute, New York City. Paper presented at the Ninth Texas Water Works Short School, Dallas, Tex., January 24–29, 1927. (Abstract by V. M. Ehlers.)

Disinfection.—Contact periods between chlorine on sewage is of little, if any, value. Effective disinfection is secured instantaneously when residual chlorine is maintained in the treated sewage. By the orthotolidine test, only 0.2 to 0.5 p. p. m. at the end of the 10-minute contact need be maintained. A positive test for residual chlorine is equally as satisfactory an indication of efficiency as disclosed by bacterial tests. The quantity of chlorine required is determined by "chlorine demand," which parallels the oxygen demand to a great extent. The chlorine demand varies markedly during the year for any particular sewage. The dosage should be varied to meet the conditions existing—each sewage differing in demand. The demand

is high in warm weather and but half or less than half in cold weather. When residual is maintained, solids such as pass through inefficient settling tanks are effectively penetrated by the chlorine and disinfected satisfactorily. For highest efficiency and greatest chlorine economy with simultaneous efficiency of disinfection, residual chlorine tests should be made several times during the day.

Prechlorination.—Application of chlorine at inlet of tanks, rather than to the effluent, offers the following advantages: (1) Less chlorine required to produce a satisfactory disinfected tank effluent; (2) odors reduced or eliminated if desired; (3) flow chambers kept in fresh condition; (4) no contact chambers required beyond tank; (5) tank acts as "balance wheel," smoothing out fluctuation of flow and quality of sewage; (6) oxygen demand reduced; (7) "foaming" of tank prevented or reduced.

Odor control.—Chlorine dosage considerably less than that to produce residual chlorine will retard odor production or reduce that already existing; for this purpose, chlorine should be applied to tank influent and very probably better yet to the sewer proper at some distance ahead of plant. The dosage required will vary with the sewage treated and local conditions varying between 4 and 15 p. p. m.

Fly nuisance and filter pooling.—The Psychoda fly can be controlled and practically eliminated by intermittent application of heavy chlorine dosages (20 to 30 p. p. m.) to insure 3 p. p. m. residual chlorine at nozzles. Chlorine is applied at syphon chamber and continued for a sufficient period to loosen the organic film on the surface, and subsequent applications are made at 14-day intervals during the fly season. Duration of application is 12 hours to night sewage flow. Pooling of beds is eliminated and cleansing of piping and nozzles is simultaneously secured. The spray washes the disintegrated film from the bed, and larvae are drowned. Improvement of the normal filter efficiency follows chlorine application within a few days.

Oxygen demand reduction.—Chlorine combines with a portion of the organic matter in solution in sewage to effect a reduction in the demand of oxygen (5-day B. O. D.). The reduction is permanent for as long as 12 days, beyond which time tests were not carried further. All samples were reinoculated with the unchlorinated sewage after preparing dilutions for the incubator. The B. O. D. reduction varies considerably, depending upon the quality of the effluent ahead of chlorination. Reduction to the extent of 33 per cent and higher is common. Reductions of 60 per cent have been recorded. Certain investigators report reduction of oxygen demand of activated sludge effluent with 2 p. p. m. chlorine from 35 p. p. m. to 22 p. p. m., i. e., 40 per cent approximately. No contact period

is required. Chlorine then should apply to fill many existing deficiencies in plant efficiency at certain periods.

Foaming Imhoff tanks.—Foaming has been relieved in instances in which chlorine has been utilized. The chlorine was applied to the raw influent continuously in one case, and the results were satisfactory and foaming ceased. The dosage was at first 20 p. p. m., being reduced later to 6 p. p. m. and finally to 3 p. p. m.

Cost of chlorination.—Cost of chlorination may be reduced materially when frequent tests for residual chlorine are made. Night sewage requires considerably less than day sewage. A relatively new type of chlorine shipment has entered the sanitary field. The purchase of chlorine in "multiple unit tank car" shipments reduces the cost of chlorine materially. Chlorine is shipped in 1-ton containers on a special car. The containers themselves travel without freight being charged in either direction. Scientific control of application and reduced cost of chlorine should bring about a worth-while reduction in over-all cost of sewage disinfection.

Stream pollution by beavers, special investigation. H. C. Cashmore, assistant, division of water and sewage, State board of health, Helena, Mont. Manuscript. (Abstract by Dana E. Kepner.)

An investigation of the effect upon the public water supply of Helena, Mont., of the presence of beavers on the watershed was made by the author in cooperation with the Helena Water Department and the Montana Fish and Game Commission. Two full grown beavers, trapped on one of the streams tributary to Helena's water supply, were kept in a penthouse at the State board of health building and fed on their natural food, i. e., aspen and willow bark, etc. Samples of fresh feces were collected on each of three successive days, diluted with tap water, and the mixture was examined for *B. coli.* Gas yields of 30 to 40 per cent were obtained in 24 hours in every case; litmus lactose plates made from this broth all gave positive results, and lactose broth tubes inoculated with typical colonies all yielded gas. Controls on tap water alone were all negative.

Routine laboratory examinations of samples of water from two points on the North Fork of Little Boulder Creek, at Boulder, Mont., a stream on which beavers were plentiful, but on which no other sources of contamination were found, gave positive results for contamination, indicating that these animals were responsible. One sample from Little Boulder Creek, taken 9 miles below the beaver dams, gave negative results. On Bozeman Creek, at Bozeman, Mont., no difference was noted in samples taken above and below the beaver dams.

It is concluded that the presence of beavers apparently affects the routine laboratory tests as conducted at the water laboratory.

(Abstractor's note: In a letter transmitting this report to Dr. L. L. Lumsden of the United States Public Health Service, Mr. H. B. Foote, director of the division of water and sewage, Montana State Board of Health, states that feces from moose in Yellowstone National Park gave negative results when tested for *B. coli.*)

The effect of chlorine on the absorption of dissolved oxygen—5-day B. O. D., by polluted waters. P. Gaunt, and W. E. Abbott. *Journal of the Society of Chemical Industry*, London, vol. 45, September 10, 1926 (transactions), p. 323.(abstract by L. H. Enslow.)

Chlorination of sewage effluents reduces their oxygen demand. The period of contact between the chlorine and sewage need be little more than instantaneous. Chlorination may be continuously employed to effect improvement in defective effluents. In the case of activated sludge plant effluent possessing a 5-day oxygen demand of 35 p. p. m., application of 2 p. p. m. chlorine reduced the demand to 22 p. p. m. (37 per cent reduction). Even as little as 1 p. p. m. chlorine effected an oxygen-demand reduction to some extent. The effluent studied contained 30 p. p. m. suspended solids, and therefore was deficient.

Reduction of oxygen demand is also observed when chlorinating crude raw sewage and clarified sewage. The demand of the clarified sewage was reduced approximately 40 per cent (64 p. p. m. reduced to 39 p. p. m.) as a result of application of 8.8 p. p. m. chlorine. Chlorination apparently allows a reduction in the quantity of diluting water ordinarliy required to prevent nuisance in the receiving waterway. The effluent from the activated sludge plant ordinarily would have required 30 volumes of dilution water per volume of effluent. After chlorination with 2 p. p. m. chlorine, the same effluent required only 18 volumes of dilution water to prevent production of nuisance.

In cases of limited available dilution or in the event of a poor quality of receiving water, advantages from chlorination are material. The poorer the quality of plant effluent, the more noticeable become the effects produced by chlorination.

Odor, fly, and other nuisance-control methods at Schenectady, N. Y. Morris M. Cohn. Paper presented at the Ninth Texas Water Works Short School, Dallas, Tex., January 24–29, 1927. (Abstract by V. M. Ehlers.)

This paper deals with the necessity of controlling such nuisances from sewage treatment plants as would result in the filing of formal complaint against the municipality operating such an installation. Under the heading of odor control, the paper explains the various control measures used during routine operation of the various features of the sewage works in question. The final results of an interesting

chlorination study carried out at Schenectady are given and indicate that the application of this chemical to both raw sewage and tank effluent will aid in controlling odors. Various methods for controlling the development of the filter flies are given. Results of another chlorination study carried out on the filters indicate that chlorine application serves as an aid in fly control. The paper presents several methods for controlling the rats and mosquitoes that may become troublesome about a sewage works.

Stream pollution and industrial wastes. James A. Newlands, member of Connecticut Society of Civil Engineers; president, the Henry Souther Engineering Co., Hartford, Conn. (Paper presented at meeting February 16, 1926.) (Abstract by William L. Havens.)

Although the subject of stream pollution has been under consideration for more than 80 years in this country and abroad, there are widely divergent views among laymen as to the proper solution of the problem, and even among engineers and health authorities opinions have changed considerably during this period. Naturally, during the early days of industrial development, when the volume of trade wastes was small, no attempt was made to control the disposal of these wastes and they were discharged without treatment into the nearest water course. As the quantity of these wastes increased and further demands were placed upon the streams for water supply, recreational, and fishing uses, legislative action was taken in order to prevent this pollution.

One of the first laws enacted to control industrial waste pollution was known as the lighting and watching act passed in Great Britain in 1833. This act provided that no washings or other waste liquids arising in the manufacture of illuminating gas should be conducted into any stream and that no pipe lines constructed for the purpose of handling these wastes should interfere with or affect any of the present or future wells, sewers, or drains of the district. This law was ineffective, because no means was indicated for preventing pollution of surface or ground waters and also because subsequent legislation permitted industries to establish a prescriptive right to discharge liquid wastes into a water course if they had done so without opposition for a period of 20 years or more. This law was followed by the salmon fisheries act of 1861; but here again no penalty was enforced in case a person could establish a prior right or could show that he had used "the best practicable means within reasonable cost" to render harmless the liquid or solid matter discharged into the stream. Then followed the reports of the First Royal Commission of Rivers Pollution in 1865, the second commission in 1868, and later commissions between 1870 and 1875, which suggested certain stand-

ards of purity for British rivers and certain restrictions on the discharge of various wastes. In 1903 the Royal Commission on Sewage Disposal reported that they were "satisfied that, in some cases at least, the purification of the trade effluent by itself would be difficult to accomplish" and suggested that certain trade effluents be discharged into the public sewer systems. At the present time in Great Britain the trend of opinion, as expressed in a recent report of the standing committee of rivers pollution, seems to be that in industrial areas "the utilization of water courses as carriers of liquid wastes represents their most important use until economical methods have been developed for the treatment of such wastes." Meanwhile, the formation of local boards for the enforcement of pollution laws and the cooperation of the industries has resulted in the development of methods for treating some of the more concentrated wastes, so that considerable progress has already been made in the stream-pollution problem.

Similar boards have been formed in Germany, of which the Emscher district board is a noteworthy example. In America the first investigation of importance was authorized in 1872 by the Legislature of Massachusetts and was carried out by the State board of health.

Our early laws, like those of Great Britain, recognized certain prescriptive rights of individuals and industries and were therefore difficult of enforcement. The work done during the investigation at Lawrence has been very valuable and has contributed materially to our knowledge of the scientific problems involved. Much of this research work, however, has been directed toward the treatment of domestic sewage, and studies of industrial waste disposal have progressed so slowly that offensive conditions now exist in some of the large streams in our industrial communities. The importance and magnitude of some of our problems may be understood from the expenditures already made or contemplated for such projects as the industrial waste and sewerage problem at Pittsburgh, the many water-supply problems along the Ohio River, the sewerage for the metropolitan district at Boston, and the sewerage problem of the Chicago Sanitary District.

The present trend of stream-pollution control measures in this country is perhaps best reflected in the following statement by the chairman of the State fish and game commission of Pennsylvania: "There is one way by which stream pollution can be done away with and that is by stopping the wheels of industry; but no sane person would expect the department of fisheries to resort to such a step."

While considerable progress has been made in the past toward solving our stream-pollution problems, much greater attention has been given to the disposal of domestic wastes, and considerable

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research is still necessary along the lines of effective treatment for industrial wastes. It is the opinion of the author of this article that while State supervision is necessary, "extensive improvements are more frequently completed through the influence of district boards, representing the municipalities and industries who pay the expense, than by drastic legislation."

United States Government master specification for plumbing fixtures (for land use). Circular No. 310, Bureau of Standards, October 9, 1926. 66 pp. (Abstract by I. W. Mendelsohn.)

General and detailed specifications are given for plumbing fixtures, including many diagrams. These specifications were officially promulgated by the Federal Specifications Board on November 22, 1926, for the use of all branches of the Federal Government in the purchase of plumbing fixtures (for land use).

Water and sewerage systems for Florida rural homes. Frazier Rogers, professor of agricultural engineering, University of Florida. Bulletin 46. June, 1926. 20 pp. (Abstract by I. W. Mendelsohn.)

This bulletin contains detailed designs and descriptions of water and sewerage systems for rural homes in Florida, including list of materials and estimate of their cost.

DEATHS DURING WEEK ENDED MARCH 5, 1927

Summary of information received by telegraph from industrial insurance companies for week ended March 5, 1927, and corresponding week of 1926. (From the Weekly Health Index, March 10, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 5, 1927	Corresponding week, 1926
Policies in force	66, 911, 607	63, 525, 389
Number of death claims	13, 415	14, 676
Death claims per 1,000 policies in force, annual rate	10. 5	12. 0

Deaths from all causes in certain large cities of the United States during the week ended March 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 10, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Mar. 5, 1927[2]
	Total deaths	Death rate[1]		Week ended Mar. 5, 1927	Corresponding week, 1926	
Total (68 cities)	7,768	13.6	15.9	866	1,029	[3] 73
Akron	37	-	-	3	7	32
Albany[4]	37	16.1	22.3	3	2	63
Atlanta	90	-	-	12	6	-
White	47	-	-	5	2	-
Colored	43	(5)	-	7	4	-
Baltimore[4]	276	17.6	16.6	26	23	80
White	203	-	14.7	14	17	54
Colored	73	(5)	28.0	12	6	187
Birmingham	60	14.6	27.2	7	16	-
White	24	-	21.6	1	5	-
Colored	36	(5)	35.8	6	11	-
Boston	220	14.5	18.2	27	33	75
Bridgeport	43	-	-	4	5	74
Buffalo	151	14.3	14.3	20	16	84
Cambridge	40	16.8	16.2	7	4	124
Camden	84	13.3	26.3	8	6	137
Canton	32	14.8	7.6	6	7	142
Chicago[4]	750	12.6	13.7	92	86	80
Cincinnati	124	15.7	16.1	10	4	62
Cleveland	201	10.7	11.8	34	42	90
Columbus	85	15.2	17.2	5	14	47
Dallas	45	11.2	15.4	6	9	-
White	38	-	11.9	5	3	-
Colored	7	(5)	38.6	1	6	-
Dayton	38	11.0	8.2	4	4	66
Denver	99	17.8	17.0	6	9	-
Des Moines	21	7.3	11.8	2	4	33
Detroit	314	12.3	14.8	61	70	96
Duluth	16	7.3	5.1	2	0	43
El Paso	40	18.3	17.2	4	9	-
Erie	21	-	-	2	4	39
Fall River[4]	34	13.3	13.9	2	10	35
Flint	38	13.9	7.7	7	4	114
Fort Worth	33	10.5	11.5	1	4	-
White	29	-	11.5	1	4	-
Colored	4	(5)	11.0	0	0	-
Grand Rapids	32	10.5	10.0	4	4	59
Houston	60	-	-	8	3	-
White	34	-	-	5	3	-
Colored	26	(5)	-	3	0	-
Indianapolis	98	13.7	15.5	5	16	39
White	85	-	15.3	4	11	36
Colored	13	(5)	15.4	1	5	61
Jersey City	81	13.1	15.6	11	11	82
Kansas City, Kans	25	11.1	12.9	3	3	58
White	17	-	10.3	0	1	0
Colored	8	(5)	25.4	3	2	456
Kansas City, Mo	97	13.2	13.8	8	18	-
Los Angeles	266	-	-	23	16	66
Louisville	97	15.8	14.6	5	7	43
White	62	-	11.7	3	4	29
Colored	35	(5)	31.1	2	3	140
Lowell	32	15.1	12.3	5	5	95
Lynn	19	9.4	13.0	2	2	53
Memphis	72	21.0	23.3	5	13	-
White	33	-	18.8	3	5	-
Colored	39	(5)	31.5	2	8	-
Milwaukee	122	12.1	11.7	13	14	61
Minneapolis	113	13.3	10.7	7	8	39
Nashville[4]	51	19.3	24.0	4	9	-
White	36	-	21.8	2	4	-
Colored	15	(5)	29.4	2	5	-
New Bedford	23	10.0	10.5	7	10	121
New Haven	40	11.3	12.0	2	3	28
New Orleans	169	20.8	20.9	18	18	-
White	93	-	18.0	7	12	-
Colored	76	(5)	29.2	11	6	-

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 5, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Mar. 5, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Mar. 5, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 5, 1927	Corresponding week, 1926	
New York	1,517	13.2	16.3	184	201	76
Bronx Borough	149	8.4	14.1	17	15	54
Brooklyn Borough	487	11.2	14.7	62	79	64
Manhattan Borough	648	18.6	21.3	76	87	89
Queens Borough	146	9.4	10.6	24	18	103
Richmond Borough	42	14.9	18.6	4	2	74
Newark, N. J.	99	11.1	15.9	10	20	50
Norfolk	41	11.9	10.8	4	6	81
White	20		4.7	0	0	0
Colored	21	(5)	21.5	4	6	212
Oakland	58	11.3	10.0	5	8	59
Oklahoma City	23			4	1	
Omaha	65	15.5	12.6	3	6	33
Paterson	48	17.4	23.0	4	4	71
Philadelphia	525	13.4	22.6	60	94	80
Pittsburgh	202	16.4	17.8	29	33	101
Portland, Oreg	62			0	5	0
Providence	78	14.5	11.9	14	7	119
Richmond	46	12.5	20.1	4	5	53
White	25		16.7	2	1	40
Colored	21	(5)	28.4	2	4	76
Rochester	72	11.6	19.8	9	14	76
St. Louis	235	14.6	14.9	15	9	
St. Paul	68	14.2	13.7	5	3	45
Salt Lake City [4]	45	17.3	12.9	3	4	46
San Antonio	23	5.7	16.3	11	12	
San Diego	33	15.0	16.6	2	1	43
San Francisco	169	15.3	12.9	9	4	56
Schenectady	15	8.4	9.0	1	1	30
Seattle	71			1	12	10
Somerville	16	8.2	13.6	0	4	0
Spokane	27	12.9	15.8	3	4	75
Springfield, Mass	37	13.1	12.6	0	6	0
Syracuse	52	13.8	18.9	6	9	77
Tacoma	26	12.7	18.2	0	11	0
Toledo	87	14.9	11.5	9	6	87
Trenton	42	16.0	21.8	6	2	104
Utica	35	17.7	17.2	4	5	91
Washington, D. C	185	17.9	19.2	6	10	35
White	109		15.2	2	5	17
Colored	76	(5)	30.8	4	5	73
Waterbury	23			4	10	94
Wilmington, Del	27	11.2	32.0	1	8	25
Worcester	64	17.1	17.0	6	7	72
Yonkers	29	12.7	13.0	5	5	114
Youngstown	43	13.3	12.6	9	3	126

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 64 cities.
[4] Deaths for week ended Friday, Mar. 4, 1927.
[5] In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans, 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended March 12, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	2
Chicken pox	51
Diphtheria	39
Influenza	133
Malaria	7
Measles	167
Mumps	95
Ophthalmia neonatorum	1
Pellagra	4
Pneumonia	70
Scarlet fever	21
Smallpox	40
Tetanus	1
Tuberculosis	39
Typhoid fever	16
Whooping cough	30

ARIZONA

	Cases
Chicken pox	78
Diphtheria	1
Malta fever	1
Measles	139
Mumps	12
Pneumonia	2
Scarlet fever	57
Trachoma	2
Tuberculosis	42
Whooping cough	5

ARKANSAS

	Cases
Cerebrospinal meningitis	1
Chicken pox	32
Diphtheria	5
Hookworm disease	1
Influenza	93
Malaria	36
Measles	75
Mumps	38
Ophthalmia neonatorum	1
Pellagra	12
Scarlet fever	15
Smallpox	4
Trachoma	2
Tuberculosis	11
Typhoid fever	10
Whooping cough	55

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Los Angeles	1
Sacramento	1
Chicken pox	711
Diphtheria	127
Influenza	86
Lethargic encephalitis	2
Measles	3,735
Mumps	319
Scarlet fever	246
Smallpox	17
Tuberculosis	204
Typhoid fever	3
Whooping cough	157

COLORADO

	Cases
Cerebrospinal meningitis	1
Chicken pox	42
Diphtheria	11
German measles	5
Impetigo contagiosa	1
Influenza	1
Measles	402
Mumps	16
Pneumonia	5
Scarlet fever	107
Smallpox	2
Tuberculosis	26
Typhoid fever	1
Whooping cough	17

CONNECTICUT

	Cases
Chicken pox	104
Diphtheria	37
German measles	10
Influenza	27
Measles	77
Mumps	34
Pneumonia (broncho)	41
Pneumonia (lobar)	46
Scarlet fever	109
Septic sore throat	6
Trichinosis	1
Tuberculosis (all forms)	30
Whooping cough	41

DELAWARE

	Cases
Chicken pox	1
Diphtheria	2
Measles	9
Ophthalmia neonatorum	1
Pneumonia	3
Scarlet fever	18
Tuberculosis	3
Whooping cough	5

FLORIDA

Chicken pox	68
Dengue	1
Diphtheria	35
Influenza	68
Lethargic encephalitis	2
Malaria	21
Measles	134
Mumps	9
Pneumonia	99
Poliomyelitis	1
Rabies	1
Scarlet fever	29
Smallpox	32
Tetanus	17
Tuberculosis	119
Typhoid fever	17
Whooping cough	16

GEORGIA

Cerebrospinal meningitis	2
Chicken pox	45
Conjunctivitis (infectious)	1
Diphtheria	15
Hookworm disease	2
Influenza	374
Malaria	8
Measles	162
Mumps	23
Pellagra	2
Pneumonia	70
Scarlet fever	23
Septic sore throat	4
Smallpox	73
Tuberculosis	26
Typhoid fever	5
Whooping cough	59

IDAHO

Chicken pox	6
Diphtheria	6
Measles	61
Mumps	2
Scarlet fever	17
Smallpox	5
Tuberculosis	1
Whooping cough	9

INDIANA

Cerebrospinal meningitis	1
Chicken pox	261
Diphtheria	47
Influenza	41
Measles	243
Mumps	2
Pneumonia	14
Scarlet fever	265
Smallpox	150
Tuberculosis	30

[1] Week ended Friday.

INDIANA—continued

	Cases
Typhoid fever	1
Whooping cough	84

KANSAS

Chicken pox	119
Diphtheria	10
Dysentery	1
German measles	10
Influenza	13
Lethargic encephalitis	1
Measles	933
Mumps	55
Pellagra	1
Pneumonia	53
Poliomyelitis	1
Scarlet fever	196
Smallpox	58
Tuberculosis	39
Typhoid fever	1
Whooping cough	86

LOUISIANA

Cerebrospinal meningitis	2
Diphtheria	21
Influenza	24
Malaria	6
Measles	164
Pneumonia	23
Poliomyelitis	1
Scarlet fever	10
Smallpox	17
Tuberculosis	38
Typhoid fever	12
Whooping cough	17

MAINE

Chicken pox	32
Diphtheria	1
German measles	18
Influenza	15
Measles	213
Mumps	22
Pneumonia	22
Scarlet fever	26
Tuberculosis	4
Typhoid fever	2
Vincent's angina	2
Whooping cough	38

MARYLAND [1]

Chicken pox	176
Diphtheria	43
German measles	5
Impetigo contagiosa	1
Influenza	455
Malaria	1
Measles	54
Mumps	22
Pneumonia (broncho)	77
Pneumonia (lobar)	72
Scarlet fever	64
Septic sore throat	10
Tuberculosis	62
Typhoid fever	4
Whooping cough	86

MASSACHUSETTS

	Cases
Cerebrospinal meningitis	2
Chicken pox	297
Conjunctivitis (suppurative)	15
Diphtheria	98
German measles	6
Influenza	19
Lethargic encephalitis	3
Measles	238
Mumps	521
Ophthalmia neonatorum	32
Pneumonia (lobar)	114
Poliomyelitis	1
Scarlet fever	559
Septic sore throat	1
Tuberculosis (pulmonary)	118
Tuberculosis (other forms)	42
Typhoid fever	9
Whooping cough	184

MICHIGAN

Diphtheria	90
Measles	314
Pneumonia	173
Scarlet fever	391
Smallpox	46
Tuberculosis	60
Typhoid fever	14
Whooping cough	152

MINNESOTA

Cerebrospinal meningitis	1
Chicken pox	192
Diphtheria	30
Influenza	5
Lethargic encephalitis	1
Measles	173
Pneumonia	4
Poliomyelitis	1
Scarlet fever	261
Smallpox	2
Tuberculosis	48
Typhoid fever	5
Whooping cough	31

MISSISSIPPI

Diphtheria	8
Scarlet fever	10
Smallpox	7
Typhoid fever	5

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	1
Chicken pox	62
Diphtheria	42
Epidemic sore throat	6
Influenza	2
Measles	195
Mumps	78
Scarlet fever	126
Smallpox	14
Trachoma	18
Tuberculosis	31
Typhoid fever	6
Whooping cough	46

MONTANA

	Cases
Cerebrospinal meningitis	8
Chicken pox	14
Diphtheria	5
German measles	1
Measles	42
Mumps	18
Scarlet fever	93
Smallpox	8
Tuberculosis	3
Typhoid fever	1

NEBRASKA

Chicken pox	44
Diphtheria	7
German measles	66
Influenza	1
Measles	416
Mumps	58
Scarlet fever	85
Smallpox	20
Typhoid fever	2
Whooping cough	18

NEW JERSEY

Cerebrospinal meningitis	3
Chicken pox	349
Diphtheria	92
Influenza	42
Measles	67
Pneumonia	209
Scarlet fever	379
Typhoid fever	6
Whooping cough	234

NEW MEXICO

Chicken pox	19
Conjunctivitis	2
Diphtheria	3
German measles	96
Influenza	3
Measles	32
Mumps	27
Pneumonia	19
Scarlet fever	7
Smallpox	11
Tuberculosis	16
Whooping cough	2

NEW YORK

(Exclusive of New York City)

Chicken pox	424
Diphtheria	83
Dysentery	1
German measles	229
Malaria	1
Measles	633
Mumps	580
Ophthalmia neonatorum	1
Pneumonia	304
Poliomyelitis	1
Scarlet fever	371
Septic sore throat	2
Smallpox	15
Tetanus	1
Typhoid fever	18
Vincent's angina	17
Whooping cough	268

NORTH CAROLINA

	Cases
Chicken pox	213
Diphtheria	22
German measles	12
Measles	386
Scarlet fever	46
Septic sore throat	2
Smallpox	54
Typhoid fever	4
Whooping cough	709

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Chicken pox	17
Diphtheria	18
Influenza	149
Measles	263
Mumps	26
Pneumonia	84
Scarlet fever	71
Smallpox	47
Typhoid fever	20
Whooping cough	10

OREGON

Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	18
Influenza	210
Malaria	1
Measles	119
Mumps	25
Pneumonia [2]	6
Scarlet fever	58
Septic sore throat	3
Smallpox	37
Tuberculosis	16
Typhoid fever	2
Whooping cough	13

PENNSYLVANIA

Cerebrospinal meningitis—Pittsburgh	1
Chicken pox	782
Diphtheria	163
German measles	175
Impetigo contagiosa	8
Malaria	2
Measles	852
Mumps	400
Ophthalmia neonatorum	1
Pneumonia	227
Scabies	10
Scarlet fever	643
Tetanus	2
Tuberculosis	61
Typhoid fever	10
Whooping cough	277

RHODE ISLAND

Cerebrospinal meningitis—Providence	1
Diphtheria	8
German measles	2
Influenza	1
Measles	2

[2] Deaths.

RHODE ISLAND—continued

	Cases
Mumps	5
Pneumonia	4
Poliomyelitis—Providence	1
Scarlet fever	30
Septic sore throat	1
Tuberculosis	3
Whooping cough	6

SOUTH CAROLINA

Chicken pox	108
Dengue	3
Diphtheria	11
Hookworm disease	25
Influenza	1,352
Malaria	106
Measles	95
Pellagra	47
Poliomyelitis	2
Scarlet fever	13
Smallpox	37
Tuberculosis	51
Typhoid fever	2
Whooping cough	128

SOUTH DAKOTA

Chicken pox	5
Diphtheria	1
Influenza	4
Measles	141
Mumps	6
Pneumonia	3
Scarlet fever	71
Smallpox	9
Tuberculosis	4
Typhoid fever	1
Whooping cough	11

TENNESSEE

Chicken pox	51
Diphtheria	9
Influenza	264
Malaria	3
Measles	173
Mumps	7
Ophthalmia neonatorum	1
Pellagra	3
Pneumonia	51
Scarlet fever	60
Smallpox	11
Tuberculosis	32
Typhoid fever	6
Whooping cough	68

TEXAS

Chicken pox	73
Diphtheria	41
Influenza	379
Measles	133
Mumps	24
Pellagra	2
Pneumonia	22
Scarlet fever	64
Smallpox	62
Tuberculosis	83
Typhoid fever	3
Whooping cough	73

UTAH

	Cases
Cerebrospinal meningitis—Salt Lake City	2
Chicken pox	24
Diphtheria	6
Influenza	8
Measles	166
Mumps	13
Pneumonia	6
Scarlet fever	9
Smallpox	2
Whooping cough	33

VERMONT

Chicken pox	22
Measles	47
Mumps	60
Scarlet fever	4
Whooping cough	25

VIRGINIA

Smallpox	2

WASHINGTON

Cerebrospinal meningitis	6
Chicken pox	95
Diphtheria	14
German measles	400
Influenza	1
Measles	282
Mumps	115
Pneumonia	3
Scarlet fever	82
Smallpox	70
Tuberculosis	47
Typhoid fever	1
Whooping cough	38

WEST VIRGINIA

Chicken pox	76
Diphtheria	12
Influenza	69
Measles	228
Scarlet fever	47
Smallpox	34

WEST VIRGINIA—continued

	Cases
Tuberculosis	4
Typhoid fever	15
Whooping cough	105

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	5
Chicken pox	130
Diphtheria	20
German measles	1
Measles	42
Mumps	87
Pneumonia	42
Scarlet fever	59
Tuberculosis	8
Whooping cough	40
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	86
Diphtheria	14
German measles	26
Influenza	76
Lethargic encephalitis	1
Measles	542
Mumps	97
Ophthalmia neonatorum	1
Pneumonia	15
Scarlet fever	114
Smallpox	5
Trachoma	1
Tuberculosis	32
Typhoid fever	4
Whooping cough	59

WYOMING

Chicken pox	11
Diphtheria	1
German measles	26
Measles	41
Mumps	4
Scarlet fever	25
Smallpox	4
Tuberculosis	3

Reports for Week Ended March 5, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	59
Diphtheria	36
Influenza	21
Lethargic encephalitis	1
Measles	4
Pneumonia	63
Scarlet fever	20
Smallpox	1
Tuberculosis	32
Typhoid fever	3
Whooping cough	9

NORTH DAKOTA

	Cases
Chicken pox	25
Diphtheria	8
Measles	194
Mumps	4
Pneumonia	5
Scarlet fever	106
Smallpox	2
Tuberculosis	2
Whooping cough	5

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
December, 1926										
California	15	839	151	5	4,206	6	15	1,194	77	81
January, 1927										
Hawaii Territory	2	41	43		154		12	2	0	7
Oklahoma [1]	1	154	1,503	36	378	9	3	236	119	43
South Dakota	0	21	10		572		2	359	34	9
February, 1927										
Connecticut	5	128	49	1	408		1	438	0	4
Florida	5	121	53	8	272	4	0	65	281	31
Massachusetts	3	424	70	1	855	2	2	2,129	0	26
Michigan	0	485	30		956		1	1,424	180	31
Nebraska	1	20	60		676		0	266	65	8

[1] Exclusive of Oklahoma City and Tulsa City

December, 1926

	Cases
California:	
Beriberi	1
Chicken pox	1,636
Dysentery (amoebic)	18
Dysentery (bacillary)	13
German measles	74
Jaundice (epidemic)	5
Leprosy	5
Lethargic encephalitis	11
Mumps	697
Ophthalmia neonatorum	3
Paratyphoid fever	1
Rabies in animals	29
Tetanus	3
Trachoma	302
Whooping cough	289

January, 1927

	Cases
Chicken pox:	
Hawaii Territory	12
Oklahoma	155
South Dakota	146
Conjunctivitis (follicular):	
Hawaii Territory	235
Dysentery:	
Oklahoma	1
Dysentery (amoebic):	
Hawaii Territory	4
Leprosy:	
Hawaii Territory	6
Mumps:	
Oklahoma	34
South Dakota	30
Ophthalmia neonatorum:	
Oklahoma	1
Paratyphoid fever:	
Hawaii Territory	1
Scabies:	
Oklahoma	4
Tetanus:	
Hawaii Territory	2
Oklahoma	2

January, 1927—Continued

	Cases
Trachoma:	
Hawaii Territory	285
Oklahoma	18
Whooping cough:	
Hawaii Territory	121
Oklahoma	48
South Dakota	61

February, 1927

	Cases
Chicken pox:	
Connecticut	438
Florida	207
Massachusetts	1,244
Michigan	1,123
Nebraska	254
Conjunctivitis (infectious):	
Connecticut	1
Dengue:	
Florida	1
Dysentery:	
Florida	1
German measles:	
Connecticut	69
Massachusetts	39
Nebraska	164
Hookworm disease:	
Florida	181
Lead poisoning:	
Massachusetts	4
Lethargic encephalitis:	
Connecticut	5
Massachusetts	5
Michigan	6
Mumps:	
Connecticut	120
Florida	48
Massachusetts	1,306
Michigan	461
Nebraska	202
Ophthalmia neonatorum:	
Massachusetts	122

February, 1927—Continued

Rabies in man: Cases

Rabies in man:	Cases
Florida	1
Septic sore throat:	
Connecticut	14
Massachusetts	16
Michigan	19
Nebraska	6
Tetanus:	
Florida	2

February, 1927—Continued

Trachoma:	Cases
Connecticut	1
Massachusetts	6
Typhus fever:	
Florida	1
Whooping cough:	
Connecticut	179
Florida	55
Massachusetts	543
Michigan	532
Nebraska	123

Number of Cases of Certain Communicable Diseases Reported for the Month of December, 1926, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	133	268	45	26	93	184	215	103	79
Arizona	34	20	49	5	39	1	98	4	15
Arkansas [1]									
California	1,636	830	4,206	697	1,194	77	803	81	289
Colorado	181	96	250	12	538	61	137	6	14
Connecticut	566	122	225	61	288	0	101	8	163
Delaware	9	7	3		108	0	[2] 13	5	11
District of Columbia	236	106	5		70	0	103	8	35
Florida [1]									
Georgia	112	172	79	17	103	190	60	28	93
Idaho	80	6	414	11	208	29	[2] 14	4	7
Illinois	2,202	519	2,930	524	1,265	51	1,129	115	838
Indiana	690	320	225		675	553	160	31	346
Iowa	276	133	218	40	280	54	61	5	33
Kansas	764	110	334	43	468	121	232	18	146
Kentucky [3]									
Louisiana	37	104	122	7	92	11	[2] 180	42	7
Maine	311	12	452	37	168	0	23	11	202
Maryland	645	244	128	83	291	0	161	65	344
Massachusetts	1,718	505	358	810	1,539	0	507	94	604
Michigan	1,181	590	412	183	1,212	81	297	24	512
Minnesota	1,260	228	642		1,131	22	166	19	75
Mississippi	641	170	637	265	153	78	242	80	861
Missouri	401	261	556	28	502	8	136	33	161
Montana	81	26	563	23	454	83	68	17	15
Nebraska	277	44	72	93	204	78	6	37	68
Nevada [4]									
New Hampshire [1]									
New Jersey	1,069	530	155		783	0	387	31	731
New Mexico [1]									
New York	3,157	1,295	3,920	1,333	2,019	69	1,436	154	1,335
North Carolina	593	393	265		277	207		28	1,137
North Dakota	139	37	916	37	248	62	11	1	19
Ohio	2,440	1,123	246	301	1,606	121	609	79	823
Oklahoma [5]	101	120	138	12	162	112	53	75	67
Oregon	167	100	175	55	276	137	47	11	20
Pennsylvania	3,683	989	2,818	553	2,290	0	486	165	1,327
Rhode Island	78	67	6	11	82	0	24	1	37
South Carolina	200	484	34		66	20	96	68	166
South Dakota	128	33	328	4	298	39	4	9	61
Tennessee	253	210	83	15	270	32	119	156	251
Texas [1]									
Utah [5]									
Vermont	216	8	490	91	60	0	[2] 8	3	244
Virginia	688	307	285		396	54	[2] 131	73	1,154
Washington	591	172	810	259	498	236	172	24	47
West Virginia	456	159	302		243	32	55	175	258
Wisconsin	1,891	172	2,249	444	296	38	118	28	864
Wyoming	76	10	157	2	102			3	43

[1] Report not received at time of going to press.
[2] Pulmonary tuberculosis.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of December, 1926

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	0.63	1.27	0.21	0.12	0.44	0.87	1.16	0.40	0.37
Arizona	.95	.56	1.37	.14	1.09	.03	2.74	.11	.42
Arkansas [1]	--------	--------	--------	--------	--------	--------	--------	--------	--------
California	4.06	2.39	11.99	1.99	3.40	.22	2.29	.23	.82
Colorado	2.06	1.09	2.85	.14	6.13	.69	1.56	.07	.16
Connecticut	4.28	.92	1.70	.46	2.18	.00	.76	.06	1.23
Delaware	.45	.35	.15	--------	5.37	.00	[2] .65	.25	.55
District of Columbia	5.46	2.45	.12	--------	1.62	.00	2.38	.19	.81
Florida [1]	--------	--------	--------	--------	--------	--------	--------	--------	--------
Georgia	.43	.66	.30	.06	.39	.72	.23	.11	.35
Idaho	1.87	.14	9.69	.26	4.82	.68	[2] .33	.09	.16
Illinois	3.68	.87	4.89	.88	2.11	.09	1.89	.19	1.40
Indiana	2.63	1.22	.86	--------	2.58	2.11	.38	.12	1.32
Iowa	1.29	.62	1.02	.19	1.31	.25	.28	.02	.15
Kansas	4.94	.71	2.16	.28	3.02	.78	1.50	.12	.94
Kentucky [3]	--------	--------	--------	--------	--------	--------	--------	--------	--------
Louisiana	.23	.65	.76	.04	.57	.07	[2] 1.12	.26	.04
Maine	4.66	.18	6.78	.55	2.52	.00	.34	.16	3.03
Maryland	4.89	1.85	.97	.63	2.21	.00	1.22	.49	2.61
Massachusetts	4.84	1.42	1.01	2.28	4.34	.00	1.43	.26	1.70
Michigan	3.28	1.64	1.14	.51	3.36	.22	.82	.07	1.42
Minnesota	5.72	1.03	2.91	--------	5.13	.10	.75	.09	.34
Mississippi	4.21	1.12	4.19	1.74	1.01	.51	1.59	.53	5.66
Missouri	1.36	.88	1.88	.09	1.70	.03	.46	.11	.54
Montana	1.43	.46	9.97	.41	8.04	1.47	1.20	.30	.27
Nebraska	2.39	.38	.62	.80	1.76	.67	.05	.32	.59
Nevada [4]	--------	--------	--------	--------	--------	--------	--------	--------	--------
New Hampshire [1]	--------	--------	--------	--------	--------	--------	--------	--------	--------
New Jersey	3.53	1.75	.51	--------	2.58	.00	1.28	.10	2.41
New Mexico [1]	--------	--------	--------	--------	--------	--------	--------	--------	--------
New York	3.31	1.36	4.11	1.40	2.12	.07	1.50	.16	1.40
North Carolina	2.50	1.66	1.12	--------	1.17	1.12	--------	.12	4.79
North Dakota	2.36	.63	15.55	.63	4.21	1.05	.19	.02	.32
Ohio	4.47	2.06	.45	.55	2.94	.22	1.12	.14	1.51
Oklahoma [5]	.59	.70	.80	.07	.94	.65	.31	.43	.39
Oregon	2.29	1.37	2.40	.76	3.79	1.88	.65	.15	.27
Pennsylvania	4.60	1.24	3.52	.69	2.86	.00	.61	.21	1.66
Rhode Island	1.42	1.22	.11	.20	1.50	.00	.44	.02	.67
South Carolina	1.31	3.17	.22	--------	.43	.13	.63	.45	1.09
South Dakota	2.24	.58	5.75	.07	5.22	.68	.07	.16	1.07
Tennessee	1.22	1.01	.40	.07	1.30	.15	.57	.75	1.21
Texas [1]	--------	--------	--------	--------	--------	--------	--------	--------	--------
Utah [3]	--------	--------	--------	--------	--------	--------	--------	--------	--------
Vermont	7.22	.27	16.37	3.04	2.00	.00	[2] .27	.10	8.15
Virginia	3.27	1.46	1.36	--------	1.88	.26	[2] .62	.35	5.49
Washington	4.64	1.35	6.36	2.03	3.91	1.85	1.35	.19	.37
West Virginia	3.30	1.15	2.19	--------	1.76	.23	.40	1.27	1.87
Wisconsin	5.78	.72	9.35	1.85	1.23	.16	.49	.12	2.76
Wyoming	3.94	.52	8.15	.10	5.29	--------	--------	.16	2.23

[1] Report not received at time of going to press.
[2] Pulmonary tuberculosis.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,860,000. The estimated population of the 93 cities reporting deaths is more than 30,190,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 26, 1927, and February 27, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	1,477	1,743	
99 cities	783	1,059	961
Measles:			
38 States	20,728	14,192	
99 cities	12,058	5,003	
Poliomyelitis:			
41 States	25	13	
Scarlet fever:			
40 States	4,699	6,086	
99 cities	1,663	2,517	1,318
Smallpox:			
40 States	975	876	
99 cities	238	146	141
Typhoid fever:			
41 States	188	209	
99 cities	29	47	40
Deaths reported			
Influenza and pneumonia:			
93 cities	1,712	1,078	

City reports for week ended February 26, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	16	2	0	0	0	0	0	2
New Hampshire:									
Concord	22,546	0	0	0	0	0	27	0	0
Manchester	83,097	0	3	1	0	1	0	0	1
Nashua	29,723	0	1	0	0	0	0	0	0
Vermont:									
Barre	10,008	0	0	0	0	0	8	1	1
Burlington	24,089	1	0	0	0	0	0	1	0
Massachusetts:									
Boston	779,620	85	57	38	4	2	44	76	35
Fall River	128,993	3	4	3	0	0	1	7	8
Springfield	142,065	6	2	2	1	1	2	3	2
Worcester	190,757	10	3	3	0	0	8	4	6
Rhode Island:									
Pawtucket	69,760	0	1	0	0	0	0	0	5
Providence	267,918	0	10	8	0	0	0	0	6
Connecticut:									
Bridgeport	(1)	1	9	9	3	2	7	2	3
Hartford	160,197	10	9	1	0	0	1	2	1
New Haven	178,927	24	3	0	0	0	0	5	10
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	44	13	9		0	7	10	15
New York	5,873,356	384	189	294	135	23	36	383	210
Rochester	316,786	15	11	2		0	6	1	5
Syracuse	182,003	12	6	1		0	12	2	6
New Jersey:									
Camden	128,642	6	5	8	2	2	1	2	8
Newark	452,513	44	19	6	15	1	3	42	7
Trenton	132,020	1	4	0	3	1	0	1	3

[1] No estimate made.

City reports for week ended February 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MIDDLE ATLANTIC—con.									
Pennsylvania:									
Philadelphia	1,979,364	98	77	62	--------	11	26	98	66
Pittsburgh	631,563	80	21	22	--------	6	57	1	36
Reading	112,707	13	3	1	--------	0	3	28	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	9	9	10	0	0	1	14	14
Cleveland	936,485	165	30	84	16	0	6	38	31
Columbus	279,836	18	4	8	0	2	4	2	7
Toledo	287,380	53	6	20	4	4	12	0	6
Indiana:									
Fort Wayne	97,846	7	3	2	0	0	46	0	4
Indianapolis	358,819	88	8	7	0	2	5	16	9
South Bend	80,091	0	1	2	0	0	40	0	3
Terre Haute	71,071	4	1	0	0	0	7	0	0
Illinois:									
Chicago	2,995,239	106	93	93	20	11	1,010	114	88
Peoria	81,564	11	1	0	0	0	52	12	3
Springfield	63,923	8	1	2	2	2	195	0	2
Michigan:									
Detroit	1,245,824	112	58	71	6	6	16	84	33
Flint	130,316	21	5	2	0	1	10	0	7
Grand Rapids	153,698	10	3	0	0	0	1	0	3
Wisconsin:									
Kenosha	50,891	7	2	0	0	0	133	33	0
Madison	46,385	29	1	0	0	0	3	1	2
Milwaukee	509,192	89	16	13	1	1	32	40	11
Racine	67,707	20	2	3	0	0	11	18	2
Superior	39,671	0	0	0	0	0	5	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	5	1	0	0	0	39	0	2
Minneapolis	425,135	101	16	13	0	1	5	0	7
St. Paul	246,001	80	16	5	0	1	13	1	9
Iowa:									
Davenport	52,469	0	1	1	0	--------	9	0	--------
Des Moines	141,441	1	3	1	0	--------	30	1	--------
Sioux City	76,411	13	2	0	0	--------	90	2	--------
Waterloo	36,771	6	1	--------	0	--------	141	1	--------
Missouri:									
Kansas City	367,481	56	8	1	0	2	60	1	16
St. Joseph	78,342	2	2	0	0	1	0	0	0
St. Louis	821,543	33	48	33	0	0	18	30	--------
North Dakota:									
Fargo	26,403	3	0	0	0	0	26	12	0
South Dakota:									
Aberdeen	15,036	13	0	0	0	--------	61	0	--------
Sioux Falls	30,127	0	0	0	0	--------	0	0	--------
Nebraska:									
Lincoln	60,941	9	1	0	0	1	45	5	0
Omaha	211,768	12	5	1	0	0	75	22	8
Kansas:									
Topeka	55,411	11	2	0	0	0	13	0	1
Wichita	88,367	34	3	2	0	0	2	1	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	8	2	2	0	0	0	0	7
Maryland:									
Baltimore	796,296	155	27	51	135	9	3	0	54
Cumberland	33,741	1	0	3	2	1	0	2	3
Frederick	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	62	15	25	7	1	7	0	35
Virginia:									
Lynchburg	30,395	18	0	5	0	0	11	1	0
Norfolk	(1)	31	1	1	1	0	42	2	6
Richmond	186,403	4	3	3	0	0	151	1	7
Roanoke	58,208	2	1	0	0	2	0	1	4
West Virginia:									
Charleston	49,019	9	1	0	0	0	2	0	1
Wheeling	56,208	11	1	0	0	1	1	0	4

[1] No estimate made.

City reports for week ended February 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
SOUTH ATLANTIC—con.									
North Carolina:									
Raleigh	30,371	49	0	0	0	0	1	0	1
Wilmington	37,061	------	0	------	------	------	------	------	------
Winston-Salem	69,031	19	0	0	0	0	1	33	4
South Carolina:									
Charleston	73,125	8	0	0	43	0	8	0	2
Columbia	41,225	2	1	0	0	------	0	0	------
Greenville	27,311	1	0	3	0	0	0	0	0
Georgia:									
Atlanta	(1)	12	3	7	82	4	72	4	6
Brunswick	16,809	0	0	0	0	1	0	3	0
Savannah	93,134	1	0	0	20	2	0	1	2
Florida:									
Miami	69,754	14	3	2	1	0	0	2	0
St. Petersburg	26,847	------	0	------	------	0	------	------	0
Tampa	94,743	3	2	4	1	2	62	0	4
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	------	0	------	------	------	------	------	------
Louisville	305,935	11	5	4	4	1	1	1	7
Tennessee:									
Memphis	174,533	27	4	2	0	4	5	0	3
Nashville	136,220	9	1	1	0	0	0	0	6
Alabama:									
Birmingham	205,670	20	2	11	9	3	29	3	3
Mobile	65,955	5	1	3	2	0	46	2	1
Montgomery	46,481	2	1	0	0	0	10	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	6	0	0	0	------	9	3	2
Little Rock	74,216	5	1	0	1	0	0	0	1
Louisiana:									
New Orleans	414,493	4	12	14	6	5	99	0	16
Shreveport	57,857	7	0	1	0	0	0	26	2
Oklahoma:									
Oklahoma City	(1)	5	1	2	17	2	0	0	4
Texas:									
Dallas	194,450	19	5	7	0	0	35	4	5
Galveston	48,375	0	0	3	0	0	0	1	1
Houston	164,954	1	3	13	0	1	0	7	7
San Antonio	198,069	0	2	9	0	0	0	0	6
MOUNTAIN									
Montana:									
Billings	17,971	2	0	1	0	0	5	0	2
Great Falls	29,883	6	0	0	0	0	18	0	1
Helena	12,037	3	0	0	0	0	1	0	1
Missoula	12,668	0	1	0	1	1	0	11	0
Idaho:									
Boise	23,042	2	1	0	0	0	14	1	0
Colorado:									
Denver	280,911	27	10	5	------	4	1,028	1	5
Pueblo	43,787	3	1	0	0	0	13	0	1
New Mexico:									
Albuquerque	21,000	2	1	0	0	0	47	13	4
Arizona:									
Phoenix	38,669	0	0	0	0	0	1	0	3
Utah:									
Salt Lake City	130,948	15	2	2	0	1	106	2	5
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	35	6	3	0	------	23	46	------
Spokane	108,897	2	3	1	0	------	60	0	------
Tacoma	104,455	10	2	0	0	0	12	0	4
Oregon:									
Portland	282,383	22	7	6	21	5	41	6	20
California:									
Los Angeles	(1)	135	32	42	27	4	830	24	23
Sacramento	72,260	10	1	2	1	1	49	14	5
San Francisco	557,530	35	21	10	7	0	123	67	6

[1] No estimate made.

City reports for week ended February 26, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	0	0	0	0	2	0	0	0	8	30
New Hampshire:											
Concord	0	6	0	0	0	0	0	0	0	0	9
Manchester	3	4	0	0	0	1	0	0	0	0	16
Nashua	1	0	0	0	0	0	0	0	0	0	12
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	1	5
Burlington	1	0	0	0	0	0	0	0	0	3	12
Massachusetts:											
Boston	71	162	0	0	0	16	2	4	0	30	245
Fall River	3	3	0	0	0	1	0	0	0	0	44
Springfield	8	10	0	0	0	6	1	0	0	4	36
Worcester	9	10	0	0	0	4	0	0	0	5	61
Rhode Island:											
Pawtucket	1	2	0	0	0	1	0	0	0	2	30
Providence	8	11	0	0	0	2	0	0	0	8	55
Connecticut:											
Bridgeport	11	18	0	0	0	3	0	0	0	1	38
Hartford	6	8	0	0	0	2	0	0	0	4	36
New Haven	11	3	0	0	0	1	1	0	0	0	46
MIDDLE ATLANTIC											
New York:											
Buffalo	23	39	1	0	0	0	1	0	0	8	139
New York	251	772	1	0	0	[1] 116	6	2	0	120	1,565
Rochester	15	26	0	0	0	2	1	0	0	17	76
Syracuse	16	11	0	0	0	3	0	1	0	4	64
New Jersey:											
Camden	5	10	0	0	0	1	0	0	0	2	42
Newark	25	48	0	0	0	9	0	0	0	34	110
Trenton	5	0	0	0	0	3	0	0	0	0	49
Pennsylvania:											
Philadelphia	84	135	0	0	0	43	2	0	1	39	539
Pittsburgh	33	33	0	0	0	7	1	0	0	12	212
Reading	3	4	0	0	0	1	0	0	0	2	26
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	42	2	0	0	7	0	0	0	1	145
Cleveland	46	64	0	0	0	17	1	0	0	17	225
Columbus	12	6	3	0	0	3	1	0	0	9	94
Toledo	14	7	3	0	0	6	0	0	0	30	80
Indiana:											
Fort Wayne	5	0	1	0	0	0	0	0	0	2	33
Indianapolis	12	24	14	17	0	7	1	3	0	20	107
South Bend	3	5	1	1	0	0	0	0	0	1	18
Terre Haute	2	3	1	0	0	3	0	0	0	3	18
Illinois:											
Chicago	133	164	4	1	0	58	3	4	0	61	766
Peoria	5	3	0	0	0	1	0	0	0	4	20
Springfield	1	2	0	0	0	0	0	0	0	0	30
Michigan:											
Detroit	93	110	3	1	0	33	1	0	0	47	338
Flint	6	36	1	3	0	2	0	1	0	1	27
Grand Rapids	9	10	1	0	0	0	0	0	0	1	29
Wisconsin:											
Kenosha	2	13	0	0	0	0	0	0	0	5	6
Madison	3	10	0	0	0	1	0	0	0	19	14
Milwaukee	29	56	2	0	0	10	0	1	0	42	111
Racine	4	5	0	0	0	0	0	0	0	22	11
Superior	3	9	4	0	0	1	0	0	0	0	6

[1] Pulmonary tuberculosis only.

City reports for week ended February 26, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	6	1	0	0	1	0	0	0	0	21
Minneapolis	52	70	11	0	0	7	1	2	1	6	99
St. Paul	34	33	6	4	0	2	0	1	0	2	70
Iowa:											
Davenport	2	3	2	0	--------	--------	0	0	--------	0	--------
Des Moines	7	4	2	0	--------	--------	0	0	--------	0	--------
Sioux City	2	10	2	3	--------	--------	0	0	--------	6	--------
Waterloo	2	1	0	0	--------	--------	0	0	--------	3	--------
Missouri:											
Kansas City	11	36	2	13	0	8	0	0	0	10	120
St. Joseph	3	6	0	1	0	1	0	0	0	5	22
St. Louis	32	30	4	2	0	12	1	0	0	22	208
North Dakota:											
Fargo	2	8	0	0	0	0	0	0	0	0	6
South Dakota:											
Aberdeen	3	8	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	3	1	0	0	--------	--------	0	0	--------	0	--------
Nebraska:											
Lincoln	2	2	0	0	0	0	0	0	0	1	17
Omaha	5	20	10	5	0	2	0	0	0	0	--------
Kansas:											
Topeka	2	3	0	4	0	0	0	1	0	13	6
Wichita	3	2	1	0	0	0	0	0	0	3	26
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	27	0	0	0	1	0	0	0	2	31
Maryland:											
Baltimore	42	32	0	0	0	16	2	1	0	80	251
Cumberland	1	0	0	0	0	1	0	0	0	1	13
Frederick	0	9	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	27	17	1	0	0	14	0	1	1	20	187
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	0	9
Norfolk	2	9	0	0	0	3	0	0	0	27	--------
Richmond	4	7	0	0	0	3	0	0	0	3	48
Roanoke	1	4	0	0	0	1	1	0	0	0	24
West Virginia:											
Charleston	0	5	0	2	0	0	1	8	0	3	16
Wheeling	2	2	0	0	0	1	0	2	0	1	21
North Carolina:											
Raleigh	0	1	0	0	0	0	0	0	0	44	12
Wilmington	0	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Winston-Salem	0	0	3	0	0	2	0	0	0	42	16
South Carolina:											
Charleston	0	1	0	0	0	1	0	1	0	1	21
Columbia	0	0	0	1	--------	--------	0	0	--------	11	--------
Greenville	0	0	0	0	0	0	0	0	0	1	8
Georgia:											
Atlanta	4	4	3	20	0	4	0	1	0	6	75
Brunswick	0	0	0	0	0	0	0	0	0	0	3
Savannah	1	0	0	2	0	2	1	1	1	11	28
Florida:											
Miami	1	1	--------	0	0	3	1	0	0	6	43
St. Petersburg	0	--------	0	--------	0	1	0	--------	0	--------	18
Tampa	1	1	0	0	0	3	1	1	0	2	34
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Louisville	5	7	1	2	0	1	0	2	0	54	82
Tennessee:											
Memphis	3	17	2	7	0	3	1	0	1	30	73
Nashville	4	5	1	0	0	2	0	0	0	1	41
Alabama:											
Birmingham	2	4	8	4	0	2	1	1	0	8	59
Mobile	1	2	1	0	0	0	1	1	0	0	17
Montgomery	0	0	1	1	0	0	0	1	0	1	5

City reports for week ended February 26, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	--------	2	0	0	--------	5	11
Little Rock	1	3	0	0	0	1	0	0	0	1	--------
Louisiana:											
New Orleans	6	9	2	0	0	16	2	0	0	6	157
Shreveport	1	0	1	0	0	0	0	0	0	0	32
Oklahoma:											
Oklahoma City	2	4	3	3	0	2	0	0	0	0	33
Texas:											
Dallas	2	13	4	5	0	3	1	0	0	1	51
Galveston	0	0	1	1	0	1	0	1	0	0	9
Houston	1	3	3	6	0	8	0	0	0	0	54
San Antonio	1	0	0	0	0	11	0	0	0	0	70
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	0	8
Great Falls	2	8	2	0	0	0	0	0	0	0	9
Helena	0	3	0	0	0	1	0	0	0	0	7
Missoula	0	21	0	0	0	0	0	0	0	0	10
Idaho:											
Boise	0	1	1	0	0	0	0	0	0	0	4
Colorado:											
Denver	14	86	2	0	0	13	0	1	0	0	102
Pueblo	1	5	1	0	0	0	0	0	0	0	6
New Mexico:											
Albuquerque	2	1	0	0	0	1	0	0	0	2	10
Arizona:											
Phoenix	1	3	0	1	0	6	0	0	0	0	24
Utah:											
Salt Lake City	3	9	2	0	0	2	0	1	0	5	36
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	10	15	4	2	--------	--------	1	0	--------	6	--------
Spokane	4	27	5	19	--------	--------	0	0	--------	2	--------
Tacoma	3	9	3	18	0	0	1	0	0	2	27
Oregon:											
Portland	6	9	10	5	0	2	1	0	0	5	116
California:											
Los Angeles	26	54	7	0	0	20	2	3	0	13	259
Sacramento	1	2	1	0	0	5	0	0	0	0	37
San Francisco	14	13	5	1	0	15	0	0	0	19	158

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	0	0	0
Rhode Island:									
Providence	1	0	0	0	0	0	0	0	0
Connecticut:									
Bridgeport	1	1	0	0	0	0	0	0	0
Hartford	0	1	0	0	0	0	0	0	0

City reports for week ended February 26, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York	3	5	5	4	0	0	1	0	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	1	0	0
Pittsburgh	0	0	1	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	2	3	0	0	0	0	0	0	0
Cleveland	1	1	1	0	0	0	0	1	0
Columbus	2	0	0	0	0	0	0	0	0
Illinois:									
Chicago	3	0	0	0	0	0	0	0	0
Michigan:									
Detroit	0	2	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	1	0	0	0	0	0	0	0	0
Minneapolis	1	1	0	0	0	0	0	0	0
St. Paul	0	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	0	0	0	0	0	0	0	1	2
St. Louis	2	1	0	0	0	0	0	0	0
North Dakota:									
Fargo	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	0	4	0	0	0	0	0	0
Virginia:									
Richmond	1	1	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	0	0	0	0
Florida:									
Miami	0	0	0	0	0	0	0	1	0
Tampa [1, 2]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	2	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Helena	0	1	0	0	0	0	0	0	0
Colorado:									
Pueblo	1	0	0	1	0	0	0	0	0
Utah:									
Salt Lake City	0	1	0	0	0	0	0	0	0
Nevada:									
Reno	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	1	-------	0	-------	0	-------	0	0	-------
Oregon:									
Portland	2	1	0	1	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	0	0	0	0	0
Sacramento	1	2	0	0	0	0	0	0	0

[1] Rabies (human): 1 case at Atlanta Ga., and 1 case and 1 death at Tampa, Fla.
[2] Typhus fever: 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended February 26, 1927, compared with those for a like period ended February 27, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, January 23 to February 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927
101 cities	142	178	134	195	[2] 136	[3] 177	137	204	134	[4] 179
New England	118	163	97	146	123	[3] 168	116	132	101	149
Middle Atlantic	130	194	129	229	141	188	132	277	119	200
East North Central	138	175	119	202	[2] 132	179	134	169	141	198
West North Central	250	127	222	123	171	155	206	165	246	109
South Atlantic	115	199	132	143	134	223	104	192	73	[5] 191
East South Central	41	102	41	127	47	61	57	87	52	[6] 113
West South Central	142	206	137	235	116	151	90	172	116	197
Mountain	264	198	128	189	173	153	219	162	210	72
Pacific	166	168	188	217	139	168	204	188	214	152

MEASLES CASE RATES

101 cities	1,385	417	1,481	560	[2] 1,719	[3] 645	1,995	784	2,066	[4] 845
New England	2,745	323	2,403	378	2,342	[3] 364	2,703	181	2,184	228
Middle Atlantic	1,187	46	1,350	41	1,514	45	1,917	69	2,044	75
East North Central	2,091	500	2,155	647	[2] 2,637	738	2,933	899	3,084	930
West North Central	280	298	395	455	551	685	676	566	901	963
South Atlantic	2,261	257	2,557	538	3,086	361	3,248	795	3,269	[5] 663
East South Central	393	188	708	270	729	453	957	469	1,231	[6] 492
West South Central	26	382	34	570	13	457	9	570	9	600
Mountain	100	4,459	91	7,237	100	7,866	187	9,691	82	10,653
Pacific	72	1,508	104	1,542	166	2,225	201	2,780	161	2,872

SCARLET FEVER CASE RATES

101 cities	287	386	298	402	[2] 298	[3] 391	309	439	285	[4] 425
New England	377	539	401	508	361	[3] 544	361	469	354	541
Middle Atlantic	235	379	209	434	197	424	208	582	187	532
East North Central	300	342	338	319	[2] 359	327	372	323	340	365
West North Central	666	488	754	522	782	500	782	542	706	447
South Atlantic	158	254	162	246	169	259	149	250	199	[5] 219
East South Central	109	321	119	245	114	224	243	245	171	[6] 189
West South Central	69	113	137	126	107	75	107	67	112	117
Mountain	255	1,609	155	1,519	219	1,250	237	1,250	100	1,196
Pacific	332	327	324	437	308	390	330	340	311	314

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Worcester, Mass., not included.
[4] Wilmington, N. C., and Covington, Ky., not included.
[5] Wilmington, N. C., not included.
[6] Covington, Ky., not included.

Summary of weekly reports from cities, January 23 to February 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927
101 cities	40	26	47	25	[2] 53	[3] 26	41	33	41	[4] 25
New England	0	0	0	0	0	[3] 0	0	0	0	0
Middle Atlantic	1	0	0	0	1	0	0	0	0	0
East North Central	43	17	16	22	[2] 23	15	33	28	18	15
West North Central	54	79	52	54	32	71	65	81	79	64
South Atlantic	58	60	101	43	80	63	50	60	65	[5] 46
East South Central	21	87	41	102	52	82	103	132	52	[6] 76
West South Central	125	42	155	80	112	67	142	63	133	50
Mountain	18	9	73	9	73	18	36	27	46	0
Pacific	204	71	321	63	458	76	193	94	244	105

TYPHOID FEVER CASE RATES

	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927
101 cities	8	7	7	7	[2] 6	[3] 7	7	9	5	[4] 8
New England	9	5	14	9	5	[3] 5	7	2	5	9
Middle Atlantic	9	4	3	9	6	5	4	10	2	1
East North Central	4	2	3	5	[2] 4	2	5	4	1	6
West North Central	2	8	6	4	4	6	6	10	2	8
South Atlantic	9	18	13	5	15	18	4	24	11	[5] 29
East South Central	10	36	21	5	10	10	5	31	10	[6] 27
West South Central	17	0	4	17	0	13	21	8	30	4
Mountain	18	18	36	0	0	0	18	0	18	18
Pacific	11	21	16	8	13	18	16	3	8	8

INFLUENZA DEATH RATES

	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927
95 cities	29	25	34	19	[2] 33	[3] 24	50	23	46	[4] 22
New England	17	9	12	5	19	[3] 3	2	9	19	12
Middle Atlantic	18	22	20	21	15	28	27	25	39	22
East North Central	12	21	12	9	[2] 11	22	11	19	14	17
West North Central	13	4	19	12	4	15	19	23	23	10
South Atlantic	36	50	68	28	64	24	138	31	96	[5] 43
East South Central	72	31	103	56	62	36	160	41	134	[6] 43
West South Central	141	73	168	65	282	39	278	39	212	26
Mountain	73	72	109	45	128	72	109	27	100	54
Pacific	78	14	67	7	35	21	95	17	35	17

PNEUMONIA DEATH RATES

	Jan. 30, 1926	Jan. 29, 1927	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927
95 cities	201	159	206	168	[2] 212	[3] 147	259	146	259	[4] 164
New England	144	158	200	188	156	[3] 155	175	102	165	183
Middle Atlantic	218	174	213	197	212	174	290	149	317	177
East North Central	166	132	145	122	[2] 161	128	181	120	179	146
West North Central	110	127	125	135	78	96	127	91	108	91
South Atlantic	286	193	346	226	408	171	490	239	454	[5] 261
East South Central	207	204	248	199	222	112	295	168	300	[6] 108
West South Central	415	202	362	151	516	146	516	207	353	164
Mountain	164	171	228	144	328	144	173	189	410	135
Pacific	173	107	184	121	110	114	173	176	141	131

[2] Madison, Wis., not included.
[3] Worcester, Mass., not included.
[4] Wilmington, N. C., and Covington, Ky., not included.
[5] Wilmington, N. C., not included.
[6] Covington, Ky., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30, 438, 500	30, 960, 600	29, 778, 400	30, 289, 800
New England	12	12	2, 211, 000	2, 245, 900	2, 211, 000	2, 245, 900
Middle Atlantic	10	10	10, 457, 000	10, 567, 000	10, 457, 000	10, 567, 000
East North Central	16	16	7, 644, 900	7, 804, 500	7, 644, 900	7, 804, 500
West North Central	12	10	2, 585, 500	2, 626, 600	2, 470, 600	2, 510, 000
South Atlantic	21	20	2, 799, 500	2, 878, 100	2, 757, 700	2, 835, 700
East South Central	7	7	1, 008, 300	1, 023, 500	1, 008, 300	1, 023, 500
West South Central	8	7	1, 213, 800	1, 243, 300	1, 181, 500	1, 210, 400
Mountain	9	9	572, 100	580, 000	572, 100	580, 000
Pacific	6	4	1, 946, 400	1, 991, 700	1, 475, 300	1, 512, 800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended February 19, 1927.—The following report for the week ended February 19, 1927, was transmitted by the eastern bureau of the secretariat of the health section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	3	3	0	0	0	0
British India:						
Bombay	----	2	----	1	35	19
Calcutta	----	0	----	36	208	162
Rangoon	----	5	----	12	16	8
Vizagapatam	----	0	----	0	3	1
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Siam. Bangkok	0	0	6	5	3	1
French Indo-China:						
Saigon	1	1	0	0	1	0
Hongkong	0	0	0	0	11	7
U. S. S. R.: Vladivostok	0	0	0	0	10	----
Manchuria: Mukden	0	0	0	0	2	----

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin, Negapatam, Karachi.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang, Singapore.

Dutch East Indies.—Batavia, Sabang, Samarinda, Makassar, Belawan-Deli, Pontianak, Semarang, Menado, Bangjermasin, Cheribon, Padang, Palembang, Tarakan, Samarinda, Balikpapan.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Turane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai (International Settlement).

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria. Harbin, Antung, Yingkow, Changchun.

Kwantung.—Port Arthur, Dairen.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill. Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenco Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—St. Denis.

Mauritius.—Port Louis.

Madagascar.—Tamatave, Majunga.

Reports had not been received in time for distribution from:

British India—Madras.

Correction for the week ended February 12th:

British India—Calcutta: 27 deaths from cholera instead of 2.

INFLUENZA IN FOREIGN COUNTRIES

A telegram from the health section of the secretariat of the League of Nations, received March 11, 1927, stated that the influenza epidemic was decreasing in all European areas still affected except Scotland, Ireland, and the Union of Soviet Socialist Republics. In these countries the disease is benign. During the first week of March, 898 deaths from influenza were reported in the great towns of England. Influenza deaths were reported in Bulgaria as follows: Last week of February, 526 deaths; first week of March, 338. In Yugoslavia, 154 deaths from influenza were reported during the third week of February.

ANGLO-EGYPTIAN SUDAN

Relapsing fever.—The following item is taken from the Weekly Record dated February 18, 1927, issued by the health section of the secretariat of the League of Nations. An earlier report was published in the Public Health Reports, February 11, 1927, page 446.

The Sudan Medical Service gives the following particulars regarding the epidemic in Darfur: (1) The Zalingei district is the main center of the disease. It is estimated that 10,000 persons, of a total population of 45,000, have died. The disease appears to have died down in the northwest but is active elsewhere, and the southeastern part of the district is very heavily infected. (2) The Kebkebia area has been heavily infected but the disease appears to be dying down. (3) Nyala district, 45 villages in the Kas area and several villages of Koleikli and others immediately south of Nyala are or have been infected. (4) Some villages of the eastern slope of Gebel Marra in El Fasher district are infected.

CANADA

Communicable diseases—Week ended February 26, 1927.—The Canadian ministry of health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended February 26, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1	2				3
Influenza	32				6	1		39
Lethargic encephalitis				1				1
Smallpox		1		32		3	18	54
Typhoid fever	2	1	23	17	2	1		46

CUBA

Communicable diseases—Provinces—January 1–February 19, 1927.—Cases of disease were notified in the Provinces of Cuba for seven weeks ended February 19, 1927, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cerebrospinal meningitis			1			4	5
Chicken pox	6	54	11	14	11	15	111
Diphtheria	3	34	13	5	10	5	70
Malaria	17	146	19	15	1,228	1,794	3,219
Measles	31	153	82	39		6	311
Paratyphoid fever	5	2	2	9	2	1	21
Scarlet fever		13	26	3			42
Tetanus (infantile)	1	1	2		3		7
Typhoid fever	12	72	8	15	11	38	156

Communicable diseases—Habana—February 1–28, 1927.—During the month of February, 1927, communicable diseases were reported in Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment Feb. 28, 1927
Beri-beri			2
Chicken pox	34		25
Diphtheria	6	4	5
Leprosy			11
Malaria [1]	43		40
Measles	36	1	23
Paratyphoid fever			1
Scarlet fever	8		5
Typhoid fever [1]	14	2	19

[1] Many of these cases from the interior.

LATVIA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Chicken pox	2	Puerperal fever	1
Diphtheria	63	Scarlet fever	505
Erysipelas	20	Tetanus	4
Leprosy	3	Trachoma	24
Measles	236	Typhoid fever	49
Mumps	28	Whooping cough	160
Paratyphoid fever	2		

Population (estimated) 1,900,000.

MALTA

Communicable diseases—January, 1927.—During the month of January, 1927, communicable diseases were reported in the island of Malta as follows:

Disease	Cases	Diseases	Cases
Bronchopneumonia	11	Pneumonia	3
Cerebrospinal meningitis	1	Puerperal fever	3
Chicken pox	3	Scarlet fever	3
Erysipelas	4	Trachoma	54
Influenza	9	Tuberculosis	19
Lethargic encephalitis	1	Typhoid fever	20
Malta (undulant) fever	20	Whooping cough	45
Measles	3		

Population: Civil (estimated), 225,242.

MEXICO

Smallpox—Manzanillo—March 5, 1927.—Under date of March 5, 1927, six cases of smallpox were reported at Manzanillo, Mexico.

PERU

Plague—January, 1927.—During the month of January, 1927, 47 cases of plague with 10 deaths were reported in Peru, occurring in the departments of Ancash, Lambayeque, Libertad, and Lima.

UNION OF SOUTH AFRICA

Plague—typhoid fever—typhus fever—January 16–22, 1927.—During the week ended January 22, 1927, one case of plague, occurring in a native, was reported in the Orange Free State, on a farm in the Hoopstad district.

During the same period 20 cases of typhoid fever, occurring in Europeans, were reported in the Lichtenburg District, Transvaal.

Outbreaks of typhus fever were reported in two districts of the Cape Province and in Vredefort District, Orange Free State. The occurrence was on farms.

Typhus fever—December, 1926.—During the month of December, 1926, 162 cases of typhus fever with 22 deaths were reported in the native population, distributed by provinces as follows: Cape Province—cases, 153; deaths, 21; Orange Free State—cases, 9; deaths, 1.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended March 18, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India	Dec. 26–Jan. 1			Cases, 2,349; deaths, 1,338.
Do	Jan. 2–8			Cases, 3,080; deaths, 1,757
Bombay	Jan. 23–29	1		
Calcutta	Jan. 16–22	69	58	
Rangoon	do	1	1	
Siam	Jan. 9–22	44	32	Apr. 1, 1926–Jan. 22, 1927: Cases, 7,911; deaths, 5,211.
Bangkok	do	5	1	

PLAGUE

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Kenya—				
Kisumu	Jan. 16–22	1	1	
Uganda	Oct. 1–31	45	42	
India	Dec. 26–Jan. 1			Cases, 897; deaths, 609.
Do	Jan. 2–8			Cases, 1,766; deaths, 1,200.
Madras, Presidency	Jan. 9–15	123	66	
Rangoon	Jan. 16–22	7	7	
Java:				
Batavia	do	30	27	Province.
East Java and Madura	Jan. 2–8	2	2	
Peru				January, 1927: Cases, 47; deaths, 10.
Departments—				
Ancash—				
Bolognesi Province	Jan. 1–31			Present.
Lambayeque—				
Chiclayo Province	do	2		At Chiclayo.
Libertad—				
Trujillo	do	1		At Trujillo.
Lima—				
Callao	do	2		Country estates.
Canete Province	do	9	1	Do.
Chancay Province	do	7		Huacho districts.
Lima Province	do	26	9	City cases, 15; deaths, 6. Country estates cases, 11; deaths, 3.
Union of South Africa:				
Orange Free State—				
Hoopstad district	Jan. 16–22	1		On farm; native.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Brazil:				
Para	Feb. 5–12		1	
British East Africa:				
Tanganyika	Jan. 2–15	34	7	
Canada				Feb. 20–26, 1927: Cases, 54.
Alberta	Feb. 20–26	18		
British Columbia—				
Vancouver	Feb. 21–27	3		
Manitoba—				
Winnipeg	Feb. 27–Mar. 5	1		
New Brunswick	Feb. 20–26	1		
Ontario	do	32		
Toronto	do	6		
Saskatchewan	do	3		
Great Britain:				
England and Wales—				
Cardiff	Feb. 13–19	1		
Newcastle-on-Tyne	do	1		Outbreaks at South Shields, 10 miles from Newcastle-on-Tyne.
Sheffield	Feb. 5–19	60		
India				Dec. 26, 1926–Jan. 1, 1927: Cases, 3,649; deaths, 1,037. Jan. 2–8, 1927: Cases, 4,270; deaths, 1,028.
Bombay	Jan. 23–29	19	10	
Calcutta	Jan. 16–22	101	82	
Karachi	Jan. 24–Feb. 5	3	2	
Madras	Jan. 30–Feb. 5	20	2	
Rangoon	Jan. 16–22	4	4	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended March 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China:				
Saigon	Dec. 26-Jan. 1	3		
Japan:				
Kobe	Jan. 30-Feb. 5	1		
Java:				
East Java and Madura	Jan. 2-8	1	2	
Mexico:				
Manzanillo	Mar. 5	6		
Mazatlan	Feb. 14-20		2	
Mexico City	Feb. 13-19	1		Including municipalities in the Federal District.
San Luis Potosi	Feb. 20-26		1	
Torreon	Feb. 12-26		4	
Poland	Dec. 19-25	2		
Portugal:				
Lisbon	Jan. 23-Feb. 5	5		
Siam				Jan. 9-22, 1927: Cases, 719; deaths 275.
Bangkok	Jan. 9-22	5	5	
Spain:				
Valencia	Feb. 8-14	1		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Chile:				
Concepcion	Jan. 23-29		1	
Greece:				
Patras	do		1	
Mexico:				
Mexico City	Feb. 13-19	7		Including municipalities in Federal district.
Palestine:				
Haifa	Jan. 31-Feb. 7	1		
Ramleh district	do	1		
Poland				Dec. 19-25, 1926: Cases, 27.
Tunisia:				
Tunis	Jan. 21-31	1		
Union of South Africa				December, 1926: Cases, 162; deaths, 22. Native.
Cape Province	Dec. 1-31			Cases, 153; deaths, 21.
Do	Jan 16-22			Outbreaks. On farms.
Orange Free State	Dec. 1-31			Cases, 9; deaths, 1.
Do	Jan. 16-22			Outbreak. On farm.

Reports Received from January 1 to March 11, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 4	130	96	
India	Oct. 10-Dec. 25			Cases, 17,949; deaths, 2,169.
Bombay	Jan. 9-15	1	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-15	167	119	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-8	1	1	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; deaths, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-8	20	15	
Bangkok	Oct. 31-Jan. 1	16	5	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 16-31	8	4	
Do	Nov. 16-Dec. 31	9	6	
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Azores:				
St. Michael's Island—Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept 1-30	117	110	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Macassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents
Do	Jan. 2-22	18	7	5 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-28			Cases, 13.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India	Oct. 10-Dec. 25			Cases, 15,265; deaths, 9,296.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-22	2	2	
Madras	Oct 31-Jan. 1	581	324	
Do	Jan. 2-8	91	59	
Rangoon	Nov. 14-Dec 25	11	9	
Do	Jan. 2-8	3	2	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No cases.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-15	36	35	
East Java and Madura	Dec. 19-Jan. 1	3	3	
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Dec. 15	25	25	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Dec. 15	74	53	
Tamatave	Oct. 16-Nov. 30	14	1	
Tananarive	Oct. 16-Dec. 15			Cases, 429; deaths, 398.
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 15	44	30	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Port Louis	do	20	18	
Nigeria	Aug. 1-Oct. 31	865	775	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Departments—				
Ancash	Dec. 1-31	6	6	
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Libertad	Dec. 1-31	2		
Lima	Nov. 1-Dec. 31	42	14	
Canete Province	do	16	9	
Chancay Province	do	14	1	
Lima Province	do	12	4	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21.
Do	Jan. 2-8			Cases, 30; deaths, 22.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Bousse	do	8		
Djeneniana	do	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar district	Nov. 21-27	1		Native.
Craddock district	Jan. 2-8	2	1	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Contd.				
Orange Free State	Dec. 5-11			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-8	2		
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926. Reported Dec. 17.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20			Cases, 698.
Algiers	Dec. 11-31	4		
Do	Jan. 1-10	1		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 5	48	22	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Feb. 19			Cases, 307.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Feb. 19	66		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia				
Vancouver	Jan. 31-Feb. 6	2		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Feb. 19	18		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Feb. 12	6		
New Brunswick	Feb. 13-19	1		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Feb. 19	185		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Feb. 19	51	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Feb. 19	37		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-30	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 2-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Feb. 19-25	11	7	
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-22	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Chosen	Aug. 1-Oct. 31	47	16	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct 1-30	2		
France	Sept. 1-Nov. 30	214		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-31	10	2	
French Settlements in India	Aug. 29-Dec. 4	108	108	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Oct. 31	57	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Feb. 5			Cases, 2,724.
Bradford	Jan. 9-22	2		
Monmouthshire	Feb 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Feb. 12	14		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Feb. 5	361		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
India	Oct. 10-Dec. 25			Cases, 19,297; deaths, 4,972
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-22	51	35	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-15	248	176	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-22	23	21	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-29	42	4	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-8	1		
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925. Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925. Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Nov. 13	16		
Genoa	Dec. 20-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 5	45		
Japan	Oct. 24-Dec. 4	6		
Kobe	Nov. 14-20	1		
Do	Jan. 23-29	1		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Dec. 17-25	1		
Surabaya	Oct. 24-Nov. 27	10	1	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Sept. 30		413	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal district.
Do	Dec. 26-Feb. 12	3		Do.
Nuevo Leon State:				
Montemorelos	Feb. 24			Reported present.
Monterey	do			About 60 cases reported in one hospital; other cases stated to exist.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico—Continued.				
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported
Piedras Negras	Feb. 25	68		
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov 12-Dec. 18		3	
Do	Jan. 9-Feb. 12		14	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-22		5	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Oct. 31	73	4	
Peru:				
Arequipa	Dec. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 18			Cases, 56; deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-15	5		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-15	1		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 268.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-8	3	2	
Sierra Leone:				
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Tunisia	Oct. 1-Dec. 31	9		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5-11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak; cases 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Argentina:				
Rosario	Dec. 1-31		1	
Bulgaria	July 1-Nov. 30	33	5	
Chile:				
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	3	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Oct. 30	17	2	
Seoul	Nov. 1-30	1		
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 11, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokio Prefecture	Dec. 5-25	9		
Tokio city	do	5	1	
Lithuania	Sept. 1-Nov. 30	24	3	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Feb. 12	46		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Jan. 31	6		
Jaffa	Nov. 23-Dec. 20	6		
Do	Jan. 11-31	2		
Jerusalem	Sept. 1-Oct. 30	19		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	10		
Safad	Dec. 28-Jan. 3	1		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 18			Cases, 314; deaths, 30.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-30			Cases, 71; deaths, 8.
Cape Province	do	47	7	
Do	Nov. 14-Dec. 18			Outbreaks.
Do	Jan. 2-8			Do.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	do	22	1	
Transvaal	do	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-31	43	3	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

X

TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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EXAMINATION OF FOOD HANDLERS

By M. JAMES FINE, M. D., *Director, Tuberculosis Division, Newark City Department of Health, Consultant in Tuberculosis, New Jersey State Department of Health*

Since the discovery that diseases can be carried by the hand through food to the mouth, an effort has been made in many places to keep food handlers as a class free from communicable diseases. This effort in many cities has taken the form of periodical, compulsory physical examination of food handlers, and the results obtained have been startingly beneficial.

The food handler gains a knowledge of his bodily state of health, and if it is poor he can set about restoring it. The city limits the spread of communicable disease, while the public at large is assured that its food is being handled by individuals unable to disseminate any disease by contact.

The systematic physical examination of food handlers serves two important ends: First, to protect restaurant and hotel patrons from communicable diseases; and, second, to improve the health of a large group of workers subjected to the stresses of their occupations. Examinations of food handlers have been conducted in Newark since 1920. The work was started with restaurant employees and has been gradually extended until at the present time, grocers, confectioners, delicatessen-store workers, and milk handlers are examined.

At this time no description will be given concerning the procedure of examination. However, in view of the fact that after taking 27,000 nose and throat cultures none were found positive, it was deemed unwise to continue this procedure, and in July, 1926, it was stopped. At present the throat of every case is inspected, and if it is suspicious a culture is taken. For the same reason that the taking of nose and throat cultures was stopped Widal tests for typhoid have been discontinued.

In spite of the widely recognized benefits resulting from the examination of food handlers, it has been ascertained by means of a questionnaire that most foreign countries and a great number of large cities in this country make no provision for such examination. This can be attributed, probably, to a feeling that still exists that compulsory examinations are an insult to personal liberty. This feeling can be overcome by proper education, as has been the case in Newark.

It will be interesting at this time to survey the plan for examination of food handlers in the other countries. From a personal communication in the form of a questionannaire sent out by the author to the principal cities all over the world, it was found that in Tokio, for instance, no particular examination for food handlers was being conducted, although examinations of persons engaged in specified occupations (including food handlers) was being carried out whenever it was deemed necessary. However, this is only in accordance with a law for prevention of tuberculosis.

In Moscow, Soviet Russia, all food handlers are said to be examined prior to entrance into employment, and all persons having a communicable disease are rejected. A periodic examination of all the employees of food-handling establishments is made every three months by paid specialists of the Government.

In Warsaw, Poland, there is no examination of food handlers.

In Vienna, Austria, examination is made for communicable disease only of employees of bakeries; and these examinations are made by physicians engaged by the baker unions.

In Cairo, Egypt, the question of examining food handlers with a view of detecting communicable disease is still under consideration.

In Budapest, Hungary, there is an initial examination upon which a medical certificate is issued before the employee enters employment. The employees are not examined periodically; the shops are inspected annually.

In Berlin, Germany, there is contemplation of a law providing for the examination of food handlers for communicable diseases. This will apply to the entire country and is before the Reichstag for passage.

In Dublin, Ireland, there is no general examination of food handlers in operation; but in case of an outbreak of infectious disease in which the medium of infection is found to be a food commodity investigation and examination of food handlers are carried out.

In Stockholm, Sweden, there is a law stating that no person may be occupied in dairies or in the sale of milk who has not shown a certificate signed by a physician and declaring that he is free from pulmonary tuberculosis.

In London, England, the only regulations operative are those in force with regard to persons engaged in duties associated with the milk supply.

In Sydney, Australia, there is no law at all concerning the examinations of food handlers *per se*.

In Montreal, Canada, there is under consideration a law requiring a semiyearly examination by a licensed physician; and in Toronto, Canada, private physicians make examinations every six months.

The results of the questionnaire prove the inadequacy of most of the laws concerning food handlers in foreign countries. There seems to be no effort at compulsory examination by paid physicians of the individual cities, and a great majority have no examinations at all, consequently there can be no statistics regarding the success or failure of the procedure in foreign countries. In the cases where there is an initial examination a food handler might acquire a communicable disease any time after the medical certificate has been issued and the city authorities would have no knowledge of it.

Most of the health authorities, having no statistics to refer to, could recall only a few cases of communicable disease ever having been discovered in food handlers. Even in this country there is still too much reliance placed upon examinations by private physicians.

Dr. L. B. Gloyne, of Kansas City, states that of 2,622 food handlers examined by physicians of the board of health 61 cases were refused cards, whereas of 283 patients examined by private physicians none was found to be even suspicious. None of these latter cases had the benefit of sputum, Wassermann, or any other kind of laboratory test.

Of 48,000 food handlers examined in New York City by private physicians only 2 were found to be suspicious.

The following figures show the results obtained in Newark:

Results of examinations of food handlers in Newark, N. J., 1920–1925

1920	
Number examined by health department	2,314
Number examined outside	434
Number rejected for tuberculosis by health department	26
Number rejected for venereal disease by health department	10
	36
1921	
Number examined by health department	4,728
Number examined outside	706
Number of reexaminations	625
Number rejected for tuberculosis by health department	48
Number rejected for venereal disease by health department	18
	66
1922	
Number of restaurant employees examined by health department	4,456
Number of restaurant employees examined outside	531
Number of milk dealers examined by health department	1,053
Number of milk dealers examined by private physicians	654
Number of reexaminations	712
Number rejected for tuberculosis by health department	24
Number rejected for venereal disease by health department	0
	24
1923	
Number of restaurant employees examined by health department	4,962
Number of restaurant employees examined outside	210
Number of milk dealers examined by health department	1,507
Number of milk dealers examined by private physicians	899
Number of reexaminations	751
Number rejected for tuberculosis by health department	20
Number rejected for venereal disease by health department	3
	23

1924

Number of restaurant employees examined by health department	5,299
Number of restaurant employees examined outside	437
Number of milk dealers examined by health department	2,062
Number of milk dealers examined by private physicians	797
Number of reexaminations	796
Number rejected for tuberculosis by health department	20
Number rejected for venereal disease by health department	4
	24

1925

Number of restaurant employees examined by health department	7,010
Number of restaurant employees examined outside	501
Number of milk dealers examined by health department	2,255
Number of milk dealers examined by private physicians	642
Number of reexaminations	938
Number rejected for tuberculosis by health department	17
Number rejected for venereal disease by health department	10
	27

Summary, 1920–1925

Number of restaurant employees examined by health department	29,369
Number of restaurant employees examined outside	2,819
Number of milk dealers examined by health department	6,877
Number of milk dealers examined by private physicians	2,992
Number of reexaminations	3,822
Number of rejections for tuberculosis by health department	155
Number of rejections for venereal disease by health department	45
Number of temporary cards issued in 1925	14
Number of temporary cards issued in 1926	81

It should be borne in mind that the food handlers who visited the diagnostic clinic for so-called health certificates were probably individuals who felt reasonably certain that they were free from the evidence of communicable diseases. This self-selection undoubtedly had some influence in keeping down the percentage of tuberculous and venereal diseased individuals who came to the clinic.

A very evident conclusion that may be drawn from this survey is that the public is not protected against food handlers who may be affected with communicable diseases.

This study made manifest the need for the appointment of a medical adviser to give counsel to those who show evidence of incipient or advanced disease conditions of which they were unaware with respect to methods for the conservation of health and to urge them to secure timely medical care. Those suffering from defects of varied character are given instruction and urged to secure treatment, thus initiating with large groups of the community the practice of periodic medical examination for the conservation of health.

The examination of food handlers at the clinics by physicians who are engaged in this particular work is beneficial to the physician in the community. First, it takes away from the private physician the responsibility of causing the patient to be rejected and avoids a possible resultant break with the family. Second, a patient found to have a communicable disease is referred back to his private physician, which would not have been the case had there been no examination. Third, the fear of developing a communicable disease and, hence, of being rejected, stimulates the individual to seek periodical examinations.

The results recorded in Newark have shown that each year since 1920 there have been less and less rejections, because persons with tuberculosis or venereal disease know that no cards for employment will be issued unless they are free from communicable diseases and, therefore, they secure other occupations. Out of 36,246 examinations at the hands of board of health physicians 155 active cases of tuberculosis and 45 cases of venereal disease were found and rejected and 3,822 suspicious cases were reexamined. There were 95 temporary cards issued to individuals who had tuberculosis or a venereal disease, but whose condition was not active. It is interesting to note that out of 5,811 food handlers examined by private physicians not one suspicious case of tuberculosis was found.

The public at large benefits by having food handled by individuals free from contagious disease. The efforts and expenditures incident to establishing a system of examination of food handlers are vastly repaid by the results obtained. The city profits by limiting the spread of communicable diseases and by detecting both early and advanced cases of tuberculosis and venereal disease which otherwise would not have been discovered.

Histories have little value, however, in this type of examination; the compulsory character of the examination and the fear that any admission as to the past or present unfavorable clinical history might result in a denial of a health certificate undoubtedly seal the lips of a number of the applicants and deprive the examiners of a valuable aid to diagnosis. A similar condition prevailed in the examinations for service in the World War in the case of men anxious to get into the service and having a history of a disease.

If the present report does nothing else it should arouse those who are coworkers in the fertile field of industrial hygiene to a realization of the necessity of getting together for an agreement upon standard methods of medical examination.

As a protection for the health of the community, the examination of food handlers seems thoroughly justified in the light of the results of this study.

The outstanding point in our work and investigation is that periodical examinations of food handlers by health department physicians are unquestionably worth while and important for the following general reasons:

Such examinations prevent a great number of diseased individuals from handling food, either by detection at examination or by the deterrent effect in causing many to secure other work rather than risk such a detection.

The early discovery of a number of incipient cases of tuberculosis and subsequent treatment educate the public as to the value of periodical examinations.

The examinations benefit physicians at large by relieving them of embarrassment in cases of private patients who might lose positions, and they send more patients to them for treatment, or, in many cases, for preliminary examination before visiting the health department.

ENDEMIC THYROID ENLARGEMENT IN MASSACHUSETTS

By ROBERT OLESEN, *Surgeon*, and NEIL E. TAYLOR, *Acting Assistant Surgeon, United States Public Health Service*

GENERAL CONSIDERATIONS

There is ample reason for believing that proximity to the sea confers a comparative freedom from endemic goiter. Not only are the food and drinking water obtained near the sea more likely to contain the iodine needed to prevent goiter, but the wafting in of ocean spray is believed by some to contribute measurable quantities of the requisite element. Moreover, the inclusion of sea food in the dietary undoubtedly aids in maintaining the equilibrium of the thyroid gland.

The observation that endemic goiter is least frequent along the seacoasts apparently holds true, with minor exceptions, in America and Europe; for the disease is most conspicuous in the interior of these continents. There is, however, a relatively high incidence of endemic goiter in the Pacific Northwest, especially in the States of Oregon and Washington. As yet, no studies appear to have been made to determine whether the distribution in these States is uniform in character or whether there is an increasing incidence of the affection away from the seacoast. Quite recently another exception to the general rule has been noted in New Zealand. Despite the fact that the inhabited localities of the two chief islands of the Dominion of New Zealand are within a hundred miles of the sea, a widespread prevalence of endemic thyroid enlargement has been discovered among school children and also among the lower animals.[1] However, the experience with goiter in New Zealand is by no means an isolated one, for McCarrison has pointed out that the malady "occurs in the Delta of the Ganges, in the island of Cutch, on the coast near Manila Bay, in the island of Arran, in Algeria, on the shores of the Mediterranean Sea, and on the shores of the Barry estuary in Glamorganshire."[2]

The State of Massachusetts has an extensive coast line. Consequently, a relatively large proportion of the inhabitants are in a zone of presumably light goiter incidence. That there is relatively

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[1] Hercus, C. E., Benson, W. N., and Carter, C. S.: Endemic goiter in New Zealand and its relation to the soil-iodine. Jour. Hyg. 24: 321. (Dec.) 1925.

[2] The thyroid gland. Robert McCarrison. 1917. P. 85.

little thyroid enlargement in the State was first indicated by the results of the draft examinations.[3] During these examinations 29 simple goiters, a ratio of 0.32 per 1,000 drafted men, were discovered. In comparison with 50 States and territories in which similar thyroid observations were made, Massachusetts ranked forty-eighth. In fact, only two States, Texas and Florida, had less simple goiter, according to the draft examinations. Unfortunately the total number of thyroid enlargements detected in Massachusetts during the draft was too small to indicate the variations in distribution within the State.

A preliminary survey.—Actuated by a desire to learn whether simple goiter prevailed to a sufficient extent among Massachusetts school children to warrant the institution of prophylactic measures, Doctors Bigelow, Aub, and Sisco made thyroid examinations of 330 grammar school children in 1924.[4] Observations were made in 3 localities: (1) In small towns near Pittsfield; (2) in Pepperell and Townsend, about 30 miles northwest of Boston; and (3) in a Boston school attended by children of mixed racial stock. Two degrees of thyroid enlargement were noted—(1) those which were palpable but not visible and (2) visible enlargements. Only the visible goiters were recorded. The results of this investigation are shown in Table 1.

TABLE 1.—*Percentages of visible thyroid enlargements among 330 grammar school children in 3 localities in Massachusetts*

Places	Percentage of enlargements			
	Girls			Boys 11 years and over
	All ages	10 years and under	11 years and over	
Berkshire towns	17	7	28	4
Pepperell and Townsend	5	0	----------	0
Boston	7	0	10	0

A study of these data shows that visible thyroid enlargement was more frequent among the girls, especially in those over 11 years of age. Moreover, the malady was considerably more frequent in the Berkshire region than in or near Boston.

With the idea of obtaining more extensive information concerning the distribution of simple goiter in Massachusetts, the commissioner

[3] Defects found in drafted men. A. G. Love and C. B. Davenport. Prepared under the direction of the Surgeon General, M. W. Ireland, War Department, Washington D. C. Government Printing Office, 1920. P. 111.

[4] Unpublished study by Drs. George H. Bigelow, commissioner of health, State department of health, and J. C. Aub and Dwight Sisco, Massachusetts General Hospital.

of health requested the Public Health Service to undertake a state-wide survey. Subsequently, the writers were assigned to the duty of making the desired observations in the State. During the survey, the commissioner of health and the members of his staff, particularly the district health officers, participated actively in the work. Dr. Fredrika Moore, pediatrician of the State department of health, conducted the surveys in 11 of the 57 places included in the present report, having first become familiar with the methods during preliminary examinations made with the writers. Much of the success which attended the efforts to secure satisfactory information concerning goiter incidence was due to the energetic, sympathetic, and intelligent assistance afforded by the State department of health.[5]

Methods.—In making the thyroid survey in Massachusetts the standards evolved and employed in previous studies were utilized.[6] Inasmuch as these methods have been used in a number of surveys in different parts of the country, it is now possible to compare the results of investigations made in Cincinnati, Colorado, Minnesota, Connecticut, and Massachusetts.

Scope of the survey.—In all, 7,140 boys and 10,057 girls residing in 57 different localities were examined. Practically all of the children included in the study were attending high schools. In a few instances, however, children in the upper grades of grammar schools were also included. The locations of the places surveyed are shown on the accompanying map. It will be noted that the communities visited are well distributed throughout the State, rural as well as urban centers of population being represented.

RESULTS

Among the 7,140 boys inspected, 625 thyroid enlargements of all degrees were noted, a percentage of 8.7. Some degree of thyroid enlargement was found among 2,213, or 22 per cent of the 10,057 girls examined. These data, together with the degrees of thyroid enlargement discovered in each of the 57 places visited, are presented in Table 2. In order that the information available may be readily located, the communities are listed alphabetically.

Generally speaking, thyroid enlargement among the boys was of little moment, 550, or 7.7 per cent, of the deviations from normal being of very slight degree. There were also 63 slight, 10 moderate, and only 2 marked goiters among this relatively large group of boys.

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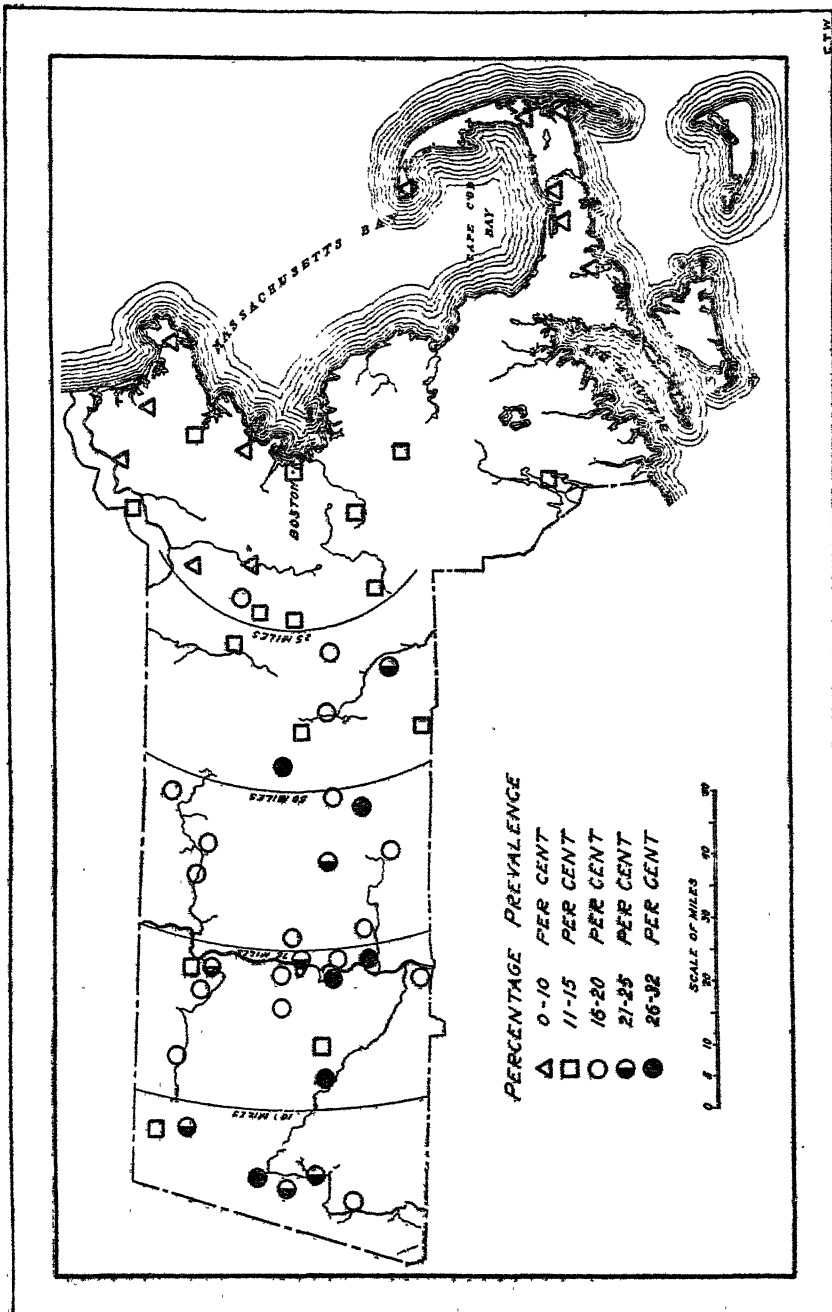
[5] Appreciative acknowledgements are also due the local health officers, nurses, school superintendents, principals, and teachers for valuable assistance, without which the thyroid examinations could not have been made so expeditiously and accurately.

[6] Thyroid survey of 47,493 elementary school children in Cincinnati. Robert Olesen. Pub Health Rept., vol. 39, No. 30, pp. 1777-1802. (July 25, 1924). Reprint No. 941.



Map showing percentage distribution of thyroid enlargement as disclosed by a survey of 7,140 boys and 10,057 girls in 57 localities in Massachusetts

TABLE 2.—*Numbers, degrees, and percentages of thyroid enlargements among 7,140 boys and 10,057 girls in 57 localities in Massachusetts*

Place	Boys								Girls							
	With thyroid enlargement						Normal	Total	With thyroid enlargement						Normal	Total
	Degree of enlargement				Total	Per cent			Degree of enlargement				Total	Per cent		
	Very slight	Slight	Moderate	Marked					Very slight	Slight	Moderate	Marked				
Acton	8	5	1		14	15.5	76	90	17	4	2		23	26.1	65	88
Adams	26	6	1		33	13.0	220	253	64	13	4		81	30.3	186	267
Agawam	17				17	11.7	128	145	25	9	1		35	20.4	137	172
Amherst	27	1			28	13.1	185	213	45	16	1		62	26.5	172	234
Athol	6				6	3.6	160	166	39	13	3		55	28.8	136	191
Barnstable	1				1	1.5	94	95	10	5			15	13.1	99	114
Boston									239	53	8		300	15.9	1,585	1,885
Brimfield	3				3	9.7	28	31	8	3			11	25.0	33	44
Brockton	21				21	8.3	233	254	69	15	3	1	88	19.2	370	458
Brookfield	11	3			14	24.2	44	58	9	4	1		14	41.2	20	34
Charlemont	1				1	2.2	44	45	6	7			13	38.2	21	34
Chatham	2				2	4.0	47	49	2				2	3.3	58	60
Chelmsford							71	71	14	4			18	16.5	91	109
Chester	7				7	11.6	53	60	15	14	3		32	51.6	30	62
Chicopee	36	4	1		41	17.0	200	241	74	28	6	1	109	37.2	184	293
Concord	6	2			8	5.3	143	151	11	3	1		15	10.0	135	150
Cotuit							24	24	1				1	5.2	18	19
Danvers	5				5	1.9	250	255	54	11	1		66	24.9	199	265
Deerfield	7	2			9	12.3	64	73	18	4	2		24	33.8	47	71
East Hampton	18	3			21	16.3	108	129	33	17	3		53	34.2	102	155
Fall River	11				11	5.1	206	217	50	13	1		64	15.5	348	412
Gloucester	6				6	1.8	313	319	51	6		1	58	13.3	378	436
Great Barrington	14	3			17	14.0	104	121	22	10			32	25.6	93	125
Greenfield	10				10	6.8	137	147	28	9			37	24.4	115	152
Groveland	3				3	4.0	72	75	7	3			10	13.5	64	74
Hadley	4				4	8.1	45	49	14	4	3		21	35.0	39	60
Harvard	2	1			3	10.7	25	28	3	1			4	23.6	13	17
Hatfield	5	1			6	9.5	57	63	10	7			17	29.3	41	58
Holden	1				1	2.0	49	50	10	4	2		16	28.0	41	57
Huntington	3		1		4	10.8	33	37	4	4			8	15.4	44	52
Ipswich	3				3	1.7	173	176	10	2			12	7.1	156	168
Lee	14	2			16	18.0	73	89	23	6			29	32.2	61	90
Lenox	15	2			17	23.3	56	73	13	4			17	27.9	44	61
Ludlow	9	1			10	10.4	86	96	26	5			31	25.2	92	123
Marlborough	7				7	3.5	192	199	38	11	1		50	20.3	197	247

Medway	3				3	5.0	57	60	8	2	1		11	18.3	49	60
Methuen	8	1			9	6.3	133	142	23	7	1		31	17.2	149	180
North Adams	30	2	1		33	11.1	263	296	41	14	3		58	19.0	247	305
Norwood	40		1		41	15.5	223	264	59	16	3		78	29.7	185	263
North Brookfield	9	3			12	13.3	78	90	14	5	2		21	24.2	66	87
North Bridge	5				5	4.6	104	109	33	13			46	37.1	78	124
Orange	14	2			16	9.3	135	171	35	10	1		46	21.6	167	213
Orleans							43	43	3				3	5.9	48	51
Pittsfield	28	5	2	2	37	13.7	232	269	74	34	4		112	41.5	158	270
Provincetown	1				1	1.7	92	93	4				4	3.3	118	122
Rutland Center	3				3	8.8	31	34	8	4	1	1	14	45.2	17	31
Saugus	9				9	2.9	297	306	33	5			38	11.8	285	323
Shelburn	7				7	8.7	73	80	28	6	1		35	27.0	95	130
South Hadley	5				5	5.6	84	89	29	7			36	30.8	81	117
Stow	1	1			2	4.3	44	46	7	2			9	20.5	35	44
Ware	25	3			28	13.8	175	203	44	14	2		60	28.6	150	210
Webster	14	2			16	9.3	156	172	21	8	2		31	19.4	129	160
Westboro	6				6	7.3	76	82	16	8	1		25	28.4	63	88
Winchendon	7	2	1		10	13.0	67	77	14	8	3		25	27.8	65	90
Williamsburg	3				3	7.5	37	40	7	6			13	34.2	25	38
Worcester	22	6	1		29	9.0	292	321	64	21	5	2	92	32.1	194	286
Yarmouth	1				1	9.1	10	11	2				2	7.1	26	28
Total	550	63	10	2	625		6,515	7,140	1,629	502	76	6	2,213		7,844	10,057
Percentage	7.7	.88	.14	.028		8.7	91.3	100.0	16.2	4.9	.75	.059		22.0	78.0	100.0

As may have been expected, simple goiter was more frequently encountered among the girls. Thus, there were 1,629, or 16.2 per cent, very slight and 502, or 4.9 per cent, slight enlargements. There were also 76 moderate and 6 marked thickenings. It is apparent that the enlargements among the girls were largely of the very slight and slight varieties, the aggregate being not unduly large. Approximately two and one-half times more thyroid enlargements were noted among the girls than among the boys. This disparity in incidence between the sexes indicates a relatively light general prevalence of the affection in the State.

The total numbers and percentages of thyroid enlargements in each of the places visited are shown in Table 3. The communities included in this tabulation have been combined in groups, according to their approximate distance from the ocean. By using Boston as a center and constructing 25-mile zones, as shown on the map, it has been possible to make groupings which indicate, in general, an increase in the incidence of thyroid enlargement in the localities removed from the coast. Localities with comparatively high percentages among the boys were Brookfield, Lee, and Lenox. Places with high prevalence rates among the girls were Brookfield, Charlemont, Chester, Pittsfield, and Rutland Center. However, these findings must be interpreted with caution, because the percentages are based upon comparatively small numbers in each of the communities. Particularly noteworthy in connection with the percentage distribution of simple goiter are the low rates among both girls and boys living on Cape Cod and in the eastern portion of the State.

The infrequency of simple goiter among the school children of Cape Cod is all the more interesting because of the apparent conflict with the theory expounded by McClendon.[7] As a result of a large number of iodine determinations in various sections of the United States McClendon concluded that an inverse ratio exists between the incidence of simple goiter and the amount of iodine in the drinking water. However, according to several determinations made by Clark,[8] iodine is absent from the drinking water obtained from wells located in Truro and used in Provincetown, in which locality endemic goiter is rare. Undoubtedly the consumption of marine food and the proximity to salt water supply ample quantities of iodine for normal maintenance of the thyroids in this community.

[7] McClendon, J. F., and Hathaway, J. C.: Inverse relation between iodine in food and drink and goiter, simple and exophthalmic. Jour. Amer. Med. Assoc. 82:21, 1668. (May 24, 1924.)

[8] A detailed report of iodine findings in Massachusetts is in preparation by H. W. Clark, chemist, Massachusetts Department of Health.

TABLE 3.—*Total numbers and percentages of thyroid enlargements among 7,140 boys and 10,057 girls and among both sexes combined in each of 57 localities in Massachusetts, in order of increasing distance from the seacoast*

Locality	Percentage			Number		
	Both sexes	Boys	Girls	Both sexes	Boys	Girls
All localities	16.5	8.7	22.0	2.838	625	2.213
WITHIN 25 MILES OF THE COAST						
Chatham	3.6	4.0	3.3	4	2	2
Orleans	3.2	--------	5.0	3	--------	3
Provincetown	2.3	1.7	3.3	5	1	4
Yarmouth	7.7	9.1	7.1	3	1	2
Barnstable	7.6	1.5	13.1	16	1	15
Cotuit	2.3	--------	5.2	1	--------	1
Gloucester	8.5	1.8	13.3	64	6	58
Ipswich	4.3	1.7	7.1	15	3	12
Danvers	13.6	1.9	24.0	71	5	66
Saugus	7.5	2.9	11.8	47	9	38
Groveland	8.7	4.0	13.5	13	3	10
Brockton	15.3	8.3	19.2	109	21	88
Boston	15.9	--------	15.9	300	--------	300
Fall River	11.9	5.1	15.5	75	11	64
Norwood	22.6	15.5	29.7	119	41	78
Methuen	12.4	6.3	17.2	40	9	31
Chelmsford	10.0	--------	16.5	18	--------	18
Medway	11.6	5.0	18.3	14	3	11
Concord	7.6	5.3	10.0	23	8	15
Acton	20.8	15.5	26.1	37	14	23
Stow	12.2	4.3	20.5	11	2	9
Marlborough	12.8	3.5	20.3	57	7	50
25 TO 50 MILES FROM THE COAST						
Harvard	15.5	10.7	23.6	7	3	4
Westboro	18.2	7.3	28.4	31	6	25
North Bridge	21.9	4.6	37.1	51	5	46
Worcester	19.9	9.0	32.1	121	29	92
Webster	14.2	9.3	19.4	47	16	31
Holden	15.9	2.0	28.0	17	1	16
Rutland Center	26.1	8.8	45.2	17	3	14
50 TO 75 MILES FROM THE COAST						
Winchendon	20.9	13.0	27.8	35	10	25
North Brookfield	18.6	13.3	24.2	33	12	21
Brookfield	30.4	24.2	41.2	28	14	14
Brimfield	18.7	9.7	25.0	14	3	11
Ware	21.3	13.8	28.6	88	28	60
Athol	17.1	3.6	28.8	61	6	55
Orange	16.1	9.3	21.6	62	16	46
Ludlow	18.7	10.4	25.2	41	10	31
Chicopee	28.1	17.0	37.2	150	41	109
75 TO 100 MILES FROM THE COAST						
Amherst	20.1	13.1	26.5	90	28	62
South Hadley	19.9	5.6	30.8	41	5	36
Hadley	22.9	8.1	35.0	25	4	21
Agawam	16.4	11.7	20.4	52	17	35
Hatfield	19.0	9.5	29.3	23	6	17
Deerfield	22.9	12.3	33.8	33	9	24
Greenfield	15.7	6.8	24.4	47	10	37
East Hampton	26.0	16.3	34.2	74	21	53
Shelburn	20.0	8.7	27.0	42	7	35
Williamsburg	20.5	7.5	34.2	16	3	13
Huntington	13.5	10.8	15.4	12	4	8
Charlemont	17.7	2.2	38.2	14	1	13
Chester	31.9	11.6	51.6	39	7	32
100 TO 125 MILES FROM THE COAST						
North Adams	15.1	11.1	19.0	91	33	58
Adams	21.9	13.0	30.3	114	33	81
Lee	25.1	18.0	32.2	45	16	29
Pittsfield	27.6	13.7	41.5	149	37	112
Lenox	25.4	23.3	27.9	34	17	17
Great Barrington	19.9	14.0	25.6	49	17	32

The tendency of goiter to increase in frequency toward the central and western portions of the State is clearly shown on the map by symbols indicative of varying percentages of thyroid involvement. This map has been arranged with zones showing the approximate distance from the sea of each of the localities in which thyroid surveys were made. It is clear that goiter, in so far as Massachusetts is concerned, is least prevalent along and near the seacoast, and increases in prevalence as the central portion of the State is approached. There is an area of considerable prevalence in the western-central portion, increasing to slightly greater proportions in the extreme western, or Berkshire, region. These are, of course, generalizations to which there are numerous minor exceptions. For instance, it is readily apparent that goiter is considerably more prevalent in the town of Adams than in North Adams, though the latter is only a few miles away. An admirable opportunity for an epidemiological study is afforded by the variations in goiter incidence among the school children of these adjoining communities.

On considering the ages at which the children examined are more prone to thyroid enlargements, it will be seen, upon examining Table 4, that tendencies noted in previous investigations were likewise present in the Massachusetts survey. Thus, it is apparent that thyroid enlargement decreases in frequency among the boys as the higher ages are reached. Among the girls, on the contrary, the percentage prevalence continues to increase as the ages become greater.

Comparisons in goiter incidence.—Inasmuch as thyroid surveys have been made in several States under similar conditions by the same examiners, it is now possible to compare the results. A chart comparing the prevalence of simple goiter in Minnesota and Cincinnati appeared in a former report.[9] From this graphical representation it was apparent that endemic thyroid enlargement was much more prevalent in Minnesota.

The completion of the thyroid survey in Connecticut made available additional material for comparative purposes. Thus, in the report dealing with the Connecticut survey it was shown that, while the curves of thyroid incidence observed similar trends in Minnesota, Cincinnati, and Connecticut, the disease was relatively least frequent in the last named.[10]

The rates of goiter incidence in Connecticut and Massachusetts should show marked similarity. When the comparison is made graphically, as in the accompanying chart, it is evident that the trends are similar, though simple goiter appears to be slightly more frequent among the boys examined in Massachusetts and less frequent

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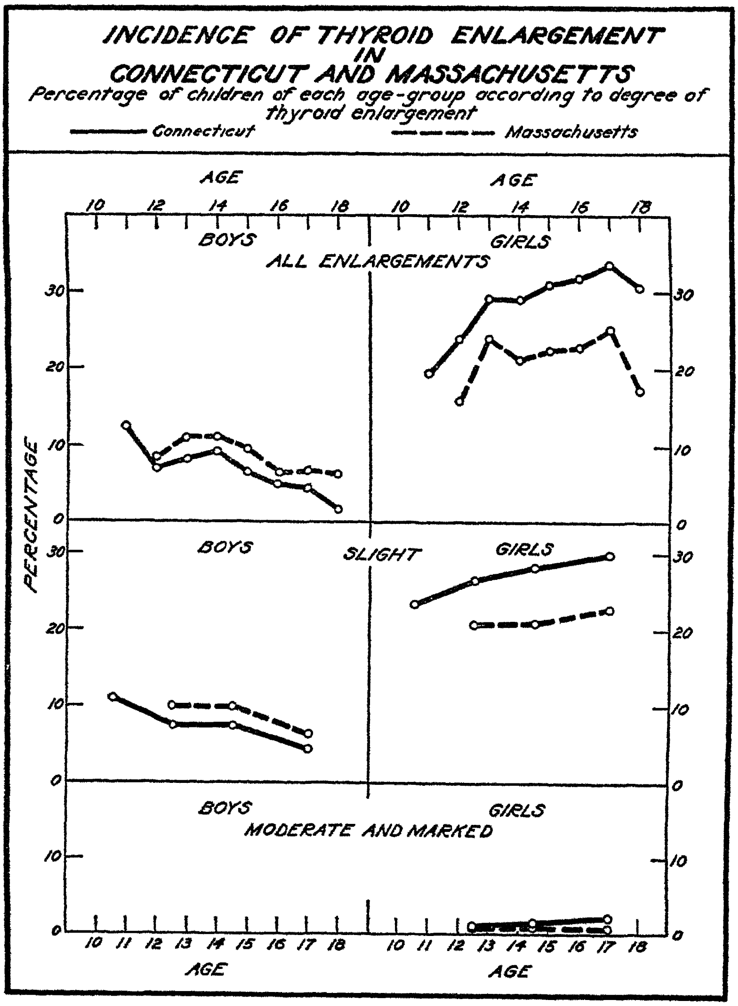
[9] Thyroid enlargement among Minnesota school children. Robert Olesen and Taliaferro Clark. Pub. Health Rep. vol. 39, No. 41, pp. 2561–2572. (Oct. 10, 1924.) Reprint No. 963.

[10] Incidence of endemic thyroid enlargement in Connecticut. Robert Olesen and Neil E. Taylor. Pub. Health Rep., vol. 41, No. 33, pp. 1695–1707. (Aug. 13, 1926.) Reprint No. 1102.

TABLE 4.—*Numbers and degrees of thyroid enlargement among 7,140 boys and 10,057 girls (by ages) in 57 localities in Massachusetts*

Age	Boys								Girls							
	With enlarged tonsils						Normal	Total	With enlarged tonsils						Normal	Total
	Degree of enlargement				Total	Per cent			Degree of enlargement				Total	Per cent		
	Very slight	Slight	Moderate	Marked					Very slight	Slight	Moderate	Marked				
12	30	5			35	8.2	389	424	51	19	2		72	17.9	379	451
13	86	11			97	10.9	790	887	197	76	10	1	284	23.9	810	1,10[illegible]
14	143	12	5	1	161	11.0	1,306	1,467	412	91	19	3	[illegible]	21.0	1,[illegible]93	2,018
15	144	16	1		161	9.6	1,511	1,672	447	120	16		[illegible]	22.1	2,000	2,643
16	71	11	1		86	6.5	1,242	1,3[illegible]8	336	1[illegible]6	19	1	476	22.7	1,624	2,100
17	47	5	2	1	55	6.4	809	8[illegible]	[illegible]	77	8	1	[illegible]	24.8	918	1,221
18	17	2	1		20	5.1	570	[illegible]90	[illegible]	18	2		77	17.9	352	429
19	6	1			7	8.0	80	87	8	1			9	12.5	64	7[illegible]
20 and over	3				3	14.3	18	21	4				4	22.[illegible]	11	18
Total	550	63	10	2	625	8.7	6,515	7,140	1,6[illegible]9	[illegible]02	76	6	2,213	22.0	7,844	10,057
Per cent	7.7	.88	.14	.028		8.7	91.3	100.0	16.2	[illegible]	.75	.0[illegible]9		22.0	78.0	100.0

among the girls. The moderate and marked thyroid enlargements are so few in number that they can not be shown to advantage on the chart.



SUMMARY

1. The thyroid survey in Massachusetts included 7,140 boys and 10,057 girls residing in 57 localities and attending high school or upper grades of grammar school.

2. A total of 2,838 thyroid enlargements, a percentage of 16.5 were found among the 17,197 children examined.

3. Thyroid enlargements of all degrees prevailed among the boys to the extent of 8.7 per cent and among the girls to the extent of 22 per cent.

4. By far the greatest number of thyroid enlargements were very slight in character and consequently dubious as to significance. Very slight thyroid involvements were present in 7.7 per cent of the boys and among 16.2 per cent of the girls.

5. Slight thyroid thickenings were noted in 63 boys, moderate thickenings in 10, and marked thickenings in only 2. Slight enlargements were recorded in 502 girls, moderate enlargements in 76, and marked enlargements in 6.

6. The customary decline in thyroid involvement as the higher ages are reached among the boys and the reverse condition among the girls, was noted.

7. In Massachusetts, goiter is least prevalent in the eastern portion, the rates being particularly low on Cape Cod. In the central and western sections of the State, endemic thyroid enlargement is present to a relatively greater, though not undue, extent.

8. A comparison of thyroid enlargement in Minnesota, Cincinnati, and Massachusset shows that while the trends are distinctive and similar, the malady is least prevalent in the last named.

9. When thyroid incidence in Connecticut and Massachusetts is compared it is found that the affection is slightly more frequent among the Massachusetts boys and less frequent among the Massachusetts girls.

COMMENT

From the evidence which has been presented it is apparent that endemic goiter is present to a far less extent in Massachusetts than in certain States in the Great Lakes Basin. Moreover, the incidence of goiter is not uniform in Massachusetts, being least along the seacoast and greatest in the central and western portions.

Because of the relatively slight incidence of thyroid enlargement in the State and the fact that a large majority of the involvements are of the very slight type, there is believed to be no reason for special preventive measures on the part of the State and local health departments. Certainly there is no necessity for universal prophylaxis such as may be attained by iodization of table salt or municipal water supplies.

At the same time there are local problems of goiter incidence which may well receive consideration. This observation applies

[11] Concerning the general recommendations which have been made under this heading, Dr. H. S. Plummer, Consultant in Goiter Studies, United States Public Health Service, says, in a personal communication: "I am wholly in accord with the suggestions made. The efforts to control endemic goiter should at present be confined to sections where it is sufficiently prevalent to make the interpretations of results fairly definite. I am somewhat skeptical about the advisability of the general use of iodine in the form of iodized salt and in public water supplies."

[12] Discussing the same subject, Dr. David Marine, Consultant in Goiter Studies, United States Public Health Service, says, in a personal communication: "I am in entire accord with the recommendations made. The greatest incidence of thyroid enlargement found in the State is, in my opinion, not sufficient to warrant community prophylaxis. Most of the slight enlargements will spontaneously disappear."

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particularly to a few localities in the central and western portions of the State, in which the incidence of the malady is a matter of common knowledge. In these communities individual oral prophylaxis among the adolescent girls is indicated. Because of the light incidence among the boys and the frequent disappearance of the slight enlargements as they grow older, prophylaxis for this sex may be omitted.

Whatever action is taken should be predicated upon a harmonious understanding between the State and local health officials, the medical profession, and the school authorities. As prevention is primarily a function of public-health workers, the direction of this portion of the program may well be intrusted to these officials. The inclusion of the thyroid examination as a phase of the routine appraisal of school children should be encouraged. This examination can be made expeditiously and yet yield valuable information. The procedure will be greatly facilitated by following standard methods.

The treatment of existing enlargements, on the other hand, falls within the province of the practicing physician. At the same time it should be remembered that the treatment of endemic goiter is frequently disappointing. Especially should it be recalled that iodine, when used in treating goiter, is a two-edged sword. When used injudiciously, either in improper doses or in certain types of goiter which are made worse by such medication, iodine may inflict irreparable damage. Only the well trained and experienced medical practitioner should undertake to treat existing goiters.

Provided there are no contraindications, medical attendants should institute prophylatic measures during pregnancy in accordance with the recommendations of Marine.[13] By so doing the thyroid glands of the prospective mother and of the fetus will be safeguarded. Commenting on this procedure and its applicability, Marine says, in a personal communication: "The administration of iodine, possibly to the extent of a milligram a day during pregnancy and lactation, would be an excellent physiological procedure, whether the individual resides in a district where the incidence of goiter is high or in a district where the incidence is extremely low. Iodine would be beneficial in meeting the increased physiological demands during these periods even though the natural supply of the element is always sufficient to prevent thyroid enlargement."

Summarizing, it may be said that the endemic goiter problem in Massachusetts is not a pressing one, the need for special action being limited to individuals in a few localities.

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[13] Marine, David: The importance of our knowledge of thyroid physiology in the control of thyroid diseases. Arch. of Int. Med. 32:6, 811. (December, 1923.)

AN EXPERIMENT IN GOITER PREVENTION[1]

In view of the widespread interest in goiter incidence and prevention in the United States, a brief abstract of the above-named article by Doctor McCarrison has been prepared by Surg. Robert Olesen and is printed below for the information of health officers and other persons concerned with the cause and prevention of endemic goiter in this country, many of whom have an opportunity to note any effect produced on goiter incidence by the change in water supplies affecting large numbers of persons.

In 1914 McCarrison submitted a report to the Indian Research Fund Association[2] dealing with the causation of endemic goiter at the Lawrence Royal Military School, Sanawar, Punjab, Northern India. As a result of his investigations he concluded that the disease was not due to any chemical substances, such as lime or magnesium in suspension or solution, in the water used for drinking purposes. On the other hand, he was convinced that the malady was due to the presence in the water of living microorganisms. Consequently he believed that goiter could be eradicated by furnishing a chemically and bacteriologically pure water.

According to McCarrison, goiter has been endemic in Sanawar since the foundation of the school in 1848. In some years as many as 50 per cent of the children suffered from it. After a residence of 8 years about 80 per cent of the children became goitrous. When McCarrison first examined the children in 1913 no less than 66 per cent of the girls over 16 years of age had noticeable goiters.

In 1918 the old water supply of Sanawar was abandoned and a new supply was piped from the neighboring station of Kasauli. Thereafter goiter began to diminish and, according to the reports of the medical officers attached to the school, disappeared within three years. McCarrison revisited the school in 1923, at which time he found only 1 boy and 10 girls, at or over the age of puberty, with small, barely noticeable goiters. The remaining 489 children were free from the disease. The percentage of goitrous involvement, 2.2 per cent, was no greater than that among the children living in non-goitrous sections of India. Commenting upon the eradication of this affection from the school within the short space of three years, McCarrison states that the result is, so far as he is aware, unparalleled in the history of goiter prophylaxis.

Searching for an explanation of this result, McCarrison learned from the school authorities that there had been no increase in the iodine intake of the children by way of food. Analyses of the new

[1] By Robert McCarrison, M. D., etc., Indian Medical Service. British Med. Jour., January 15, 1927, p. 94.

[2] McCarrison, R.: Indian Jour. of Med. Research, 1:3, 1, 1914.

water by several chemists, using McClendon's method of iodine determination, showed only traces of lime and magnesium and no iodine.

McCarrison later had chemical determinations made of the soil and water in Sanawar and Kasauli by three chemists, each working independently. Their findings showed a close correspondence and a general agreement which may be summarized as follows:

1. The soils and waters of both Sanawar and Kasauli were poor in iodine.
2. There was no significant difference in the iodine content of the soil in the two places.
3. The old water supply of the Sanawar school contained appreciably more iodine than the new, which contained little or none, thus confirming the previous reports of the chemical examiner of Punjab in regard to the new supply.

Commenting upon these results McCarrison says: "The conclusion arrived at in my first report, that endemic goiter in the Sanawar school was due to the bacteriological impurity of the old water supply, is thus substantiated; and the prediction that it could be eradicated by the provision of a chemically and bacteriologically pure water supply has been justified by the disappearance of the disease."

ABSTRACTOR'S COMMENTS

McCarrison, who began the study of the thyroid gland in 1902, became convinced, after years of investigation, that endemic goiter was caused by a living microorganism in drinking water. His experiments and observations are given in detail in the Milroy lectures delivered before the Royal College of Physicians in London.[3] An interesting summary of the facts presented in these lectures was prepared by Clark and Pierce of the Public Health Service in 1914.[4]

Later, when Marine and his colleagues presented convincing evidence that endemic goiter was due to a relative or absolute deficiency of iodine, McCarrison accepted the newer theory in conjunction with his earlier conceived living organism hypothesis.[5] He also cited other factors responsible for endemic goiter, such as infections and intoxications, as well as the inclusion in the diet of excessive quantities of fat.

Inasmuch as safe water supplies are constantly being substituted for polluted supplies in the United States, an excellent opportunity exists in this country for making comparisons of conditions before and after the change as was done in India by McCarrison. Accurate

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[3] McCarrison, R.: The Etiology of Endemic Goiter. Milroy lectures before the Royal College of Physicians, London. The Lancet, Jan. 18 and 25 and Feb. 8, 1913.

[4] Clark, Taliaferro, and Pierce, C. C.: Endemic Goiter: Its Possible Relation to Water Supply. Pub. Health Rep., 29:16, 939, Apr. 17, 1914. (Reprint 184, revised May, 1921.)

[5] McCarrison, R.: Simple Goiter. British Med. Jour., p. 636, Apr. 22, 1926.

thyroid surveys, before and after new water supplies become available, are essential. There is a growing impression in this country that the improvement of water supplies has failed to influence the incidence of endemic goiter. In the Pacific Northwest, for instance, goiter apparently increased following the use of uncontaminated water supplies from the Cascade Mountains. However, opportunities are constantly becoming available in the United States for noting the changes which follow the substitution of new and safe water supplies for those that were questionable in character. It is hoped that health officers, physicians, and others will note the changes in goiter incidence which occur under these circumstances.

ACTION TAKEN BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS IN THE INFLUENZA EPIDEMIC OF 1926-27

In a recently issued bulletin, the health section of the League of Nations sets forth briefly the action taken by it in connection with the influenza epidemic of 1926–27, and summarizes the course of the epidemic in the various countries as indicated by the reports of the respective health administrations sent to the health section of the League. The information contained in these reports has been furnished regularly to the United States Public Health Service and has been printed each week in PUBLIC HEALTH REPORTS, beginning with the issue for January 14, 1927.

The following statements outlining the action taken by the health section and, in some instances, by the health administrations, are contained in the bulletin:

Statistics of influenza cases and deaths for December having shown epidemic prevalence in Switzerland and France and higher incidence than usual in various other European countries, a telegram was dispatched on January 6 to all European health administrations asking for information regarding the actual situation. This action was all the more indicated as the daily press contained numerous references to influenza outbreaks, many of which appeared to be of doubtful character and verification was therefore desirable. The Singapore Bureau was instructed to obtain information as to whether any unusual prevalence of influenza existed in any country in its area. About the same time, telegraphic requests for information regarding the influenza situation in Europe was received from the Surgeon General of the United States Public Health Service and from the Director of the Australian Health Service.

Telegraphic replies were received during the following days from the health services of all European countries and from Egypt. The various health services continued to send information on the

prevalence of influenza once a week, or more, throughout January and the beginning of February. This information was published in special bulletins appearing twice a week on Tuesdays and on Fridays, the latter issue being combined with the regular Weekly Record of the health section. The first of these bulletins was issued on January 11, and nine reports had been published up to February 11, 1927.

The health section arranged at the same time for broadcast of short summaries of the official intelligence received by the Transocean Wireless Co. through the Nauen station. These messages were sent at the end of the English bulletins transmitted at 12.20 and 23 hours (central European time) on the 18,000-meter wave length. The administrations and the Singapore Bureau were telegraphically advised as to the time for these broadcasts. Messages were broadcast on the 15th, 19th, 22d, 26th, 29th of January, and the 2d, 4th, and 11th of February. A message sent on January 16 was by mistake not transmitted from the Nauen station. This service will be continued as long as the situation requires it.

The information received from the various health services consists of—(*a*) a general statement of the influenza situation; (*b*) regular returns of cases and deaths communicated in advance of their usual time of publication; (*c*) special information, such as sickness returns of insurance societies, of employees of public services, and of military forces.

Several administrations have issued new regulations regarding the prompt reporting of influenza cases. In Denmark, on January 7, the local health officers were required to notify immediately the appearance of the first influenza case and to send weekly reports of the number of cases instead of the former monthly reports. In Spain, on January 8, the provincial health officers were instructed to transmit telegraphic information. In the Kingdom of the Serbs, Croats, and Slovenes, on January 11, the local health officers were asked to report weekly. The same action was taken in Hungary on the same date. In Poland, compulsory notification of influenza cases in large towns was introduced on January 11. In Czechoslovakia, on the same date, the provincial authorities were asked to report weekly on the prevalence of influenza.

Telegraphic requests for continuing the information were received from the health services of Bulgaria, Germany, Italy, Latvia, Poland, Spain, and the United States. The Singapore Bureau was instructed to continue to keep the Australian Health Service informed according to its request.

The various administrations have been asked whether they have been able to pick up the broadcast from Nauen. So far only the health services of Austria, Greece, and Lithuania have answered in the affirmative.

The provisional study of the information received seems to indicate that the present is a more severe outbreak than that in 1924, but that it has been less serious in most countries than the epidemic of 1922.

It may be of interest to mention that the first reports showing abnormal prevalence of influenza came from the National Epidemic Prevention Bureau of China. During the months of June, July, and August influenza was reported to be epidemic in the Provinces of Szechuan, Kweichow, Hupek, and Kansu; that is, in the whole area of the interior of China between Mongolia in the north and Yunnan in the south, and bordering Tiber in the west and the more densely populated part of China in the east. The disease was stated to be prevalent but not epidemic in most of the coast Provinces.

A detailed analysis of the epidemic can be given only when more detailed information and, especially, statistics of causes of death are available for all countries, or at least for the principal towns. As it appears of considerable interest to obtain as much and as detailed information as possible regarding the epidemic before lapse of time prevents the collection of much of this material, the Section has asked all European health administrations to prepare a general report as soon as the epidemic is over in each country. It was suggested that the factors presenting general interest would be, in the first instance—

1. The geographical distribution of the epidemic and the chronological order in which it appeared in the various towns or districts of the country.
2. The reported incidence in the various parts of the country in so far as this can be ascertained.
3. The movement from week to week of the general mortality and of deaths from influenzal affections of the respiratory system and of the heart. (It would be important to know the rules for statistical classification of deaths in which influenza is known to have played a part but which have in the end been caused by other diseases.)
4. The age distribution of deaths from influenza and whether there have been any peculiarities in this respect in particular localities or at a given time of the epidemic.
5. Description of the clinical types of the disease prevailing at different periods; frequency of the various complications.
6. Particulars of previous influenza outbreaks, however mild, within the preceding six months and of other epidemics occurring at the same moment.
7. Bacteriological findings.
8. Measures which have been taken toward the control of the epidemic.

A comparative study of this report may reveal facts of value in dealing with the new outbreaks of influenza when they occur. This first experiment of telegraphic exchange of information on an influ-

enza outbreak offers many points of interest and may be of value on future occasions. The health committee will no doubt consider what conclusions can be drawn from it.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for April and May, 1926

Reports for the month of April, 1926, were received from 23 institutions for the care of the feeble-minded. The reports for May, 1926, included 24 institutions, but some institutions which are included in the April tabulation did not report for May and others were added to the list.

The following table gives a summary of the reports:

Patient population of institutions for the feeble-minded, April and May, 1926

	April, 1926	May, 1926
Number of public institutions included	22	22
Number of private institutions included	1	2
Total	23	24
Patients on books first day of month:		
In institutions	16,993	17,132
On temporary leave	1,871	1,860
Total	18,864	18,992
Admitted during month:		
First admissions	189	164
Readmissions	7	9
Admitted by transfer	0	9
Not accounted for	0	2
Total received during month	196	184
Total on books during month	19,060	19,176
Discharged or placed on indefinite parole during month	25	61
Transferred to other institutions	3	13
Died during month	49	57
Total discharged, transferred, and died during month	77	131
Patients on books last day of month:		
In institutions	17,093	17,059
On temporary leave	1,890	1,986
Total	18,983	19,540
Males	9,301	9,440
Females	9,682	9,605

Analysis of movement of patient population of institutions for the feeble-minded, April and May, 1926

	April, 1926	May, 1926
Per cent increase in number of patients during month:		
Total	0.63	0.28
In hospital	.59	[1] −.43
On temporary leave	1.02	6.77
Per cent of total patients absent on temporary leave at end of month	9.96	10.43
Per cent of total admissions (excluding transfers) which were—		
First admissions	96.43	94.80
Readmissions	3.57	5.20
Per cent of total patients discharged during month (based on average number during month)	.13	.32
Males per 100 females at end of month	96.06	98.28
Deaths per 1,000 patients under treatment (annual basis)	31.28	35.00

[1] Decrease.

Some institutions did not report any patients on temporary leave. Others reported only one or two patients absent from the institution. One institution reported more than 25 per cent of its patients on temporary leave.

The following table gives a summary of the leave status of patients in institutions which reported 1 per cent or more of their patients on temporary leave:

	April, 1926	May, 1926
Total number of patients at end of month	15,102	16,564
Number of patients on temporary leave	1,877	1,979
Per cent of total patients on temporary leave	12.4	11.9

PUBLIC HEALTH ENGINEERING ABSTRACTS

How Industrial Pollution Affects Water Supplies. Alvin D. McCormick, manager, Dunbar, West Virginia, Water Co. *Water Works Engineering*, vol. 80, No. 2, pp. 85–86. (Abstract by H. V. Pederson.)

The city of Dunbar, W. Va., secures its water supply from the Kanawha River which, in normal times, is a delightful body of green water. During the dry, hot season of 1925 and 1926 the water turned to a blackish brown color. Objectionable taste and odor accompanied the color, which could not be removed by the water filtration plant.

At first the color and odor were attributed to vegetation and algae, but upon careful investigation by the State health authorities it was learned that it was due to waste discharged into the river by a paper mill and tannery located 50 miles upstream. The odors, taste, and color disappeared with the coming of the fall rains.

The remainder of the paper is an appeal to the people of West Virginia, urging a concerted effort to inaugurate a sane program for protecting the beautiful streams of West Virginia against pollution without causing undue hardships upon the industries.

Disinfection of New Water Mains. William W. Brush. *Journal American Water Works Association*, vol. 17, No. 1, January, 1927, pp. 79–86. (Abstract by J. K. Hoskins.)

This article is a discussion by the author and others presented before the Buffalo convention of the association in June, 1926.

All newly laid mains in New York City are sterilized by the use of one-half ounce of chloride of lime per 12-foot length of pipe in pipes up to 12 inches in diameter. After a section of pipe between two valves has been laid, one of the valves is opened to let the water pass into the main over the total required amount of chloride of lime which is thus dissolved. The water is then blown off and a sample

is later examined bacteriologically before the main is placed in service. Additional blowing of such main is sometimes required before a satisfactory analysis is obtained, presumably owing to the accumulations of sediments which are not penetrated by the chlorine.

Discussion brought out that sterilization of newly laid mains was also practiced at Charleston, S. C., and St. Petersburg, Fla.

How Tastes and Odors in Water are Eliminated. Maj. Francis E. Daniels. *Water Works Engineering*, vol. 80, No. 1, January 5, 1927, pp. 17–18 and 37–38. (Abstract by Frank Raab.)

The writer stresses the importance of skilled supervision and then proceeds to discuss the various causes which may contribute offensive tastes and odors. The most common ones are gas-house wastes, by-product coke furnaces, wood-distillation plants, and oil refineries. In some cases chlorination reduces the trouble; in others it intensifies it tenfold. The tastes and odors in swampy and peaty waters are usually removed by aeration. The writer refers to the Manual of Water Works Practice as giving the lethal dose of copper sulphate for destroying algae; he also gives a table which shows the effect of copper sulphate upon various fish. Early dosing is recommended in order to avoid the odors resulting from the disintegration of great masses of algae. The article describes the characteristic odors common to many diatoms, blue green, and green algae. The article also cites a legal case in which a water company was restrained from collecting its fees because the water delivered had an offensive taste and odor. The court laid down the rule that a water delivered to the consumer must be free from tastes or odors which make it unfit for domestic use.

The Nature of Bacteriophage. E. B. McKinley and M. Holden. *Journal of Infectious Diseases*, vol. 39, 1926, p. 451. From Abstracts of Current Public Health Literature, Department of Health, Ottawa, Canada, February, 1927, p. 5.

"The vexed question regarding the nature of bacteriophage is as yet unsettled. d'Herelle maintains that it is a living virus, whilst Bordet upholds that, particulate though it be, it is inanimate and is simply a diastatic principle elaborated through the action of the host's tissues upon the invading bacterium.

"These authors, after an elaborate dilution study of bacteriophage, come to a conclusion similar to that of Bordet, and regard d'Herelle's criteria of the bacteriophage being a living 'ultra-microbe' (protobe) lacking in conviction. Those interested in this question will be well repaid by careful reading of the original article."

Iron Removal Plant at Selma, Ala. J. A. Fulkman and E. J. Taylor, with Morris Knowles (Inc.), engineer, Pittsburgh, Pa. *Journal American Water Works Association*, vol. 17, No. 1, January, 1927, pp. 69–74. (Abstract by J. K. Hoskins.)

This article describes the 1.5 m. g. d. iron removal plant recently constructed by the city of Selma, Ala., to serve a population of 18,000. The source of supply is wells 450 feet deep, the principal one of which is pumped by a motor-driven pump. The water as pumped is clear, but contains 18 p. p. m. of free CO_2 and 2 p. p. m. of iron, which latter soon oxidizes and discolors the water.

Aeration, sedimentation, coagulation, and rapid sand filtration are provided in the new plant to treat properly the supply. These various devices are briefly described. The plant is so arranged that the chemical treatment, including mixing and coagulation, may be by-passed if found advisable. Three one-half m. g. rapid sand filter units, of reinforced concrete and completely equipped, are provided. The filtering material consists of 18 inches of graded gravel and 30 inches of sand, effective size 0.37 mm. and uniformity coefficient of 1.7.

Results of operation show that the free CO_2 was reduced to 3 p. p. m. and the iron to 0.25 p. p. m. using aeration, sedimentation, and filtration only. The pH of the treated water was 8.6. This being considered a satisfactory effluent, coagulation is not regularly employed. However, during operation, with the addition of lime at the rate of 45 pounds per million gallons the CO_2 was completely removed and only 0.06 p. p. m. or iron remained in the effluent. The plant cost $65,000.

Notes on the Rôle of Iron in the Activated Sludge Process. Abel Wolman, chief engineer, Maryland Department of Health. *Engineering News-Record,* vol. 98, No. 5, February 3, 1927, pp. 202–204. (Abstract by T. C. Schaetzle.)

The author reviews the work of Otto Warburg, of the Kaiser Wilhelm Institute for Biology in Berlin, of L. Horowitz-Wlassowa, of the Hygienic Laboratory of the Institute of Medicine in Petrograd, of Dallyn and Delaporte of Toronto, Canada, and of the Maryland State Department of Health, to show that iron may play an important part in oxidation reactions and consequently in the treatment of sewage by the activated sludge process.

Warburg states that oxidation of organic material through molecular oxygen rarely takes place. He suggests that, in the cycle of oxygen reactions, molecular oxygen reacts with bivalent iron, forming iron in a higher state of oxidation which, in turn, reacts with the organic substances and is again reduced to bivalent iron. A diagram showing the activation of oxidation by iron in the presence of charcoal, from work done by Warburg, is presented.

The Maryland laboratory experiments indicate that the oxidation of raw sewage, in the presence of iron, without the addition of any activated sludge, and in the presence of an oxygen supply varying between 0.25 to 1 cubic foot per gallon, was reasonably successful.

By the addition of iron or aluminum salts in the activated sludge process, Horowitz-Wlassowa has found it possible to reduce the percentage of activated sludge returned to the incoming sewage to approximately 2 per cent instead of the usual 10 to 25 per cent of sludge by volume which is the usual American practice.

The author states that both hypothetical and experimental data so far available are inadequate, but believes that much is to be gained by further study of the significance of iron, or similar compounds, in the activated sludge process. He says: "There is some theoretical and some practical foundation for assuming that iron may be helpful both as an oxygen carrier and as an absorbent and coagulant. In addition, thought should be directed to the function as 'catalyst' which the iron compounds most probably perform."

Sewage Disposal. Paul Hansen. Proceedings of Eighth Texas Water Works Short School, Texas Section, Southwest Water Works Association, January 18–23, 1926, Fort Worth, Tex., pp. 138–151. (Abstract by G. N. McDaniel, jr.)

Stream pollution and methods of sewage disposal are discussed in an analytical manner. The question of sewage disposal is considered under six phases: (1) The normal uses of streams and bodies of water; (2) the causes of stream pollution; (3) the effect of causes of pollution on uses of streams; (4) classification of cases met with in stream pollution; (5) means of measuring the extent of stream pollution with reference to uses; (6) methods of treating polluting substances and their applicability to cases.

Sewage-treatment devices are adapted to attain—(1) The removal of suspended solids; (2) the oxygenation and nitrification of organic matter; (3) the removal of bacteria.

Improvements in the sewage treatment which give promise of development are—(1) Methods of separate sludge digestion; (2) process of dewatering and marketing of sludge; (3) digestion of activated sludge; (4) activated sludge as a preliminary treatment to trickling filters; (5) disinfection of sewage and sewage effluents.

Public Health Services in Australia. Dr. J. H. L. Cumpston and Dr. Frank McCallum. Monograph of the League of Nations, pp. 1–63. (Abstract by E. C. Sullivan.)

This monograph, issued under the auspices of the League of Nations, describes the health organization of the Commonwealth of Australia, including that of the six States which comprise the Federation. The Commonwealth administration and functions, as well as those of the State and local authorities, are described.

Among the subjects taken up are those of infectious diseases, venereal diseases, tropical diseases, maternity and infant welfare, school hygiene, industrial hygiene, food and drugs, the relationship

between the medical practitioner and public health, hospitals, care of the insane, and certain vital statistics rates.

Among the subjects of sanitary engineering interest, is mentioned the establishment in 1923 of a division of sanitary engineering of the Commonwealth Department of Health. Several publications of the division are referred to. Advice is given by the director of the division on the protection of water supplies, drainage, and other engineering questions affecting health. Arrangements exist whereby any student of the engineering school of the University of Melbourne who desires to specialize in sanitary engineering may take a course in bacteriology, chemical analysis, and microscopy at the Commonwealth serum laboratory.

Under the local government acts of the several States, there are provisions empowering local authorities to make by-laws regulating the supply and distribution of water, with power to raise a special water rate. The delegation of control to various water authorities varies in each State, a summary of the authorities concerned being given.

In certain of the States there are special water supply and sewerage boards for metropolitan areas, while in the country regions water works are constructed by the public works departments of the States. This is particularly true of New South Wales, Victoria, and Queensland. In New South Wales, after such construction, the water works are completely handed over to the municipalities concerned, by which the cost is repaid and the administration is carried out. In the case of South Australia, the water supply systems are constructed and maintained by the public works department. In the State of Victoria, most of the country water works are controlled by the State Rivers and Water Supply Commission. In Queensland the water supplies of the country towns are constructed and maintained by the municipalities. In Western Australia, the water supply systems are all under the management of government departments and the control of all works is vested in a ministry for water supplies, sewerage, and drainage. In Tasmania, the metropolitan water supplies are under the control of the city councils. In the country towns in Tasmania, the majority of the water works are under the control of the municipal councils, although there are some under the control of trustees.

The administration of sewerage and drainage systems in the States, as with the water supplies, is allocated to various authorities, either or both under the respective State health acts or the local government acts or under separate drainage and sewerage acts. A summary is given of the delegation of authority in the various States in connection with the installation and maintenance of sewerage systems.

In this connection it is interesting to note that in New South Wales and in South Australia the public works department constructs sewerage works. In the instance of New South Wales, it is done upon application of the local municipal council, to whom the control is transferred upon the completion of the works. In South Australia, both construction and maintenance are carried out by the public works department, which has power to levy sewerage rates. The responsibility for night soil removal in each State is placed upon the local authorities, who are empowered to collect sanitary rates for this purpose. Supervisory power in respect to the services provided and the disposal areas is vested in the State health departments.

The collection and disposal of garbage and refuse is dealt with either in the health acts or the local government acts of the various States (and sometimes in both), the responsibility being placed upon the local authorities. The levy of a special tax to provide for scavenger service is usually arranged for. Disposal is carried out through incineration or "tips" at approved sites or in special plants installed by the councils.

The local authorities in the various States are empowered to make by-laws regulating buildings in regard to areas, building materials, dangerous or dilapidated structures, etc. Various regulations are in force under these acts in regard to special classes of buildings. Provision is made for registration by the local authority and the enforcement of compliance with prescribed conditions for boarding houses, common lodging houses, and eating places. Town planning is receiving considerable stimulus through active town-planning associations. In Victoria a commission of town planning is maintained jointly by the municipalities.

There is legislation in force in the various States for supervision to insure the purity of the milk supplies and of dairy products, the legislation being administered by the health departments and the departments of stock and agriculture. The legislation in effect in the various States is given in summarized form.

Organization of the Public Health Services in the Kingdom of the Netherlands. N. M. Josephus Jitta, M. D., Monograph of the League of Nations, pp. 1–37. (Abstract by E. C. Sullivan.)

This publication is one of a series of monographs published by the League of Nations, describing the organizations and workings of the health administrations of different countries. In this particular publication are outlined the various laws and regulations in effect in the Kingdom of the Netherlands and some explanations of the same. Among the subjects covered are notification of general diseases, occupational diseases, and births and deaths; census; health legislation, including international regulations; organization of health inspection;

legislation against infectious diseases; and description of central and local public health organizations.

No mention is apparently made in this monograph of the subject of water supply and sewage disposal. Vessel sanitation is touched upon only in so far as persons suffering from infectious diseases or quarantine inspection are concerned. The subject of housing is taken up, particularly from the standpoint of obtaining improvement in housing and provisions for overpopulation. There appear to be special regulations as a consequence of a housing scarcity, and royal decrees to take care of this situation are cited.

Typhoid Carriers in Up-State New York in 1926. Anon. *Health News*, New York State Department of Health, vol. 4, No. 4, January 24, 1927, p. 14. (Abstract by I. W. Mendelsohn.)

During 1926, 27 typhoid carriers (including one paratyphoid B) were added to the list of known carriers in up-State New York, exclusive of inmates in State institutions. These carriers definitely caused 39 cases of typhoid and probably 12 others. Twenty-one of the cases were infected through milk. Interesting facts in connection with the new carriers are given. The active list (excluding State institutions) now comprises 137 carriers.

What is Known about the Effect of Smoke on Health. Wm. Charles White, M. D., pathologist, United States Public Health Service. *American City*, vol. 36, No. 2, February, 1927, pp. 204–205. (Abstract by D. W. Evans.)

Smoke prevention will be more readily secured if it can be shown that smoke-laden atmosphere has a harmful effect on the human system. The chief arguments heretofore have been for comfort and cleanliness.

The city of Pittsburgh has been suggested as an experiment center to determine definitely the effect of smoke on health. Data collected by the author show that Pittsburgh has a low tuberculosis death rate but a high pneumonia death rate. An analysis by wards shows that the higher rates occur where the smoke-laden air is the denser. Observations also showed that many children in these dense smoke areas suffered from respiratory diseases. The number of physicians specializing in respiratory disease treatment is higher per capita in Pittsburgh than in Baltimore, showing a greater demand for this type in the smoke areas.

The article is concluded by the remark that the evidence is indicative, but not conclusive, that smoke must be controlled from the viewpoint of its effects on public health.

DEATHS DURING WEEK ENDED MARCH 12, 1927

Summary of information received by telegraph from industrial insurance companies for week ended March 12, 1927, and corresponding week of 1926. (From the Weekly Health Index, March 17, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 12, 1927	Corresponding week, 1926
Policies in force	66,961,185	63,606,360
Number of death claims	14,258	11,724
Death claims per 1,000 policies in force, annual rate	11.1	12.1

Deaths from all causes in certain large cities of the United States during the week ended March 12, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 17, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 12, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Mar. 12, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 12, 1927	Corresponding week, 1926	
Total (68 cities)	8,202	14.4	17.5	867	1,099	[3] 72
Akron	37			7	4	75
Albany [4]	40	17.4	18.4	3	1	63
Atlanta	91			13	11	
White	34			3	7	
Colored	57	(5)		10	4	
Baltimore [4]	314	20.0	16.5	41	26	127
White	239		13.2	29	13	112
Colored	75	(5)	35.5	12	13	187
Birmingham	67	16.2	26.7	8	11	
White	40		17.9	4	2	
Colored	27	(5)	40.2	4	9	
Boston	267	17.6	18.0	33	39	92
Bridgeport	38			4	5	74
Buffalo	147	13.9	16.5	17	21	71
Cambridge	24	10.1	15.0	4	4	71
Camden	46	18.0	22.7	7	9	120
Canton	14	6.5	8.1	1	1	24
Chicago [4]	759	12.8	16.1	78	126	68
Cincinnati	142	18.0	16.4	8	12	50
Cleveland	186	9.9	12.2	20	30	53
Columbus	75	13.4	11.9	6	3	56
Dallas	37	9.2	14.6	8	10	
White	30		12.7	7	10	
Colored	7	(5)	27.0	1	0	
Dayton	56	16.2	14.7	7	5	115
Denver	104	18.7	19.9	8	6	
Des Moines	27	9.4	14.6	1	3	17
Detroit	333	13.0	18.4	64	09	101
Duluth	23	10.4	7.8	5	0	108
El Paso	29	13.3	17.2	9	8	
Erie	30			4	5	78
Fall River [4]	32	12.5	10.7	2	1	35
Flint	28	10.2	14.6	1	6	16
Fort Worth	41	13.0	15.7	3	6	
White	31		16.8	2	5	
Colored	10	(5)	8.2	1	1	
Grand Rapids	44	14.4	14.4	2	9	29
Houston	45			9	9	
White	28			6	5	
Colored	17	(5)		3	4	
Indianapolis	83	11.6	16.2	7	15	55
White	67		15.5	3	10	27
Colored	16	(5)	21.3	4	5	241
Jersey City	78	12.6	21.0	12	13	90
Kansas City, Kans	41	18.3	19.2	3	2	58
White	32		17.8	3	2	67
Colored	9	(5)	25.4	0	0	0

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 64 cities.
[4] Deaths for week ended Friday, Mar. 11, 1927.
[5] In the cities for which deaths are shown by color the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended March 12, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Mar. 12, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Mar. 12, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 12, 1927	Corresponding week, 1926	
Kansas City, Mo	105	14.3	16.3	14	14	
Los Angeles	276			21	15	60
Louisville	78	12.7	17.4	4	15	34
White	57		15 4	3	11	29
Colored	21	(5)	28 8	1	4	70
Lowell	32	15.1	14.2	10	2	193
Lynn	24	11.9	16.5	4	2	106
Memphis	71	20.7	21 8	3	5	
White	38		16 9	0	3	
Colored	33	(5)	30.6	3	2	
Milwaukee	131	13 0	10.3	22	17	103
Minneapolis	89	10.5	13.6	10	12	56
Nashville [4]	54	20 4	25.9	3	4	
White	22		21.3	2	3	
Colored	32	(5)	37.4	1	1	
New Bedford	24	10.5	10.9	4	4	69
New Haven	51	14 4	16.9	7	7	98
New Orleans	159	19 6	21.2	14	18	
White	101		17.3	7	10	
Colored	58	(5)	32.1	7	8	
New York	1,705	14.9	19.2	158	228	65
Bronx Borough	184	10.4	15.6	21	20	67
Brooklyn Borough	613	14.1	17.3	64	83	66
Manhattan Borough	690	19 8	25.6	56	93	66
Queens Borough	168	10.8	12.7	16	23	68
Richmond Borough	50	17.7	23.3	1	9	19
Newark, N. J	131	14 7	15.3	17	14	84
Norfolk	36	10.5	14.7	4	6	81
White	14		10.8	0	2	0
Colored	22	(5)	21.5	4	4	212
Oakland	52	10.2	10.2	6	8	70
Oklahoma City	25			4	6	
Omaha	54	12.9	14.7	3	8	30
Paterson	38	13.8	17.5	3	7	50
Philadelphia	617	15.8	24.3	57	85	70
Pittsburgh	194	15.7	17.0	12	30	42
Portland, Oreg	65			3	3	32
Providence	84	15.6	16.5	8	2	68
Richmond	56	15.2	18.8	6	4	79
White	29		15.6	3	3	61
Colored	27	(5)	26 5	3	1	114
Rochester	94	15.1	27.0	11	9	93
St. Louis	238	14.8	16.8	19	11	
St. Paul	55	11.5	10.5	5	6	45
Salt Lake City [4]	19	7.3	9.8	4	2	61
San Antonio	61	15 1	16 5	11	8	
San Diego	63	28.6	21.8	5	2	106
San Francisco	160	14.5	15.0	11	14	69
Schenectady	15	8.4	10.7	1	2	30
Seattle	67			5	6	52
Somerville	19	9.7	12.0	0	2	0
Spokane	33	15.8	19.1	3	3	75
Springfield, Mass	35	12.4	15 5	1	8	15
Syracuse	51	13.5	25.1	3	9	39
Tacoma	34	16.6	12.8	3	2	71
Toledo	77	13.2	13.4	9	9	87
Trenton	51	19.4	19.1	6	6	104
Utica	31	15.7	19.7	4	2	91
Washington, D. C	178	17.2	17.7	16	22	93
White	111		13.0	8	10	63
Colored	67	(5)	31.6	8	12	147
Waterbury	22			4	4	94
Wilmington, Del	32	13.2	23.5	4	4	99
Worcester	62	16.6	15 4	7	6	84
Yonkers	26	11.4	16.2	2	6	45
Youngstown	46	14.2	12.3	8	8	112

[4] Deaths for week ended Friday, Mar. 11, 1927.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended March 19, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	3
Chicken pox	30
Diphtheria	10
Influenza	141
Lethargic encephalitis	1
Malaria	11
Measles	231
Mumps	44
Pellagra	7
Pneumonia	94
Scarlet fever	13
Smallpox	66
Tuberculosis	133
Typhoid fever	14
Whooping cough	75

ARIZONA

	Cases
Chicken pox	5
Diphtheria	2
Influenza	3
Measles	12
Pneumonia	3
Scarlet fever	8
Tuberculosis	16

ARKANSAS

	Cases
Chicken pox	19
Diphtheria	9
Influenza	64
Malaria	14
Measles	113
Mumps	17
Pellagra	3
Poliomyelitis	1
Scarlet fever	10
Smallpox	2
Trachoma	1

ARKANSAS—continued

	Cases
Tuberculosis	4
Typhoid fever	24
Whooping cough	82

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Los Angeles	3
Sacramento	1
San Francisco	1
Chicken pox	563
Diphtheria	122
Influenza	81
Jaundice (epidemic)	1
Measles	2,865
Mumps	238
Poliomyelitis—Fresno County	1
Scarlet fever	204
Smallpox	26
Tuberculosis	184
Typhoid fever	10
Whooping cough	149

COLORADO

	Cases
Chicken pox	40
Diphtheria	7
German measles	4
Influenza	2
Measles	324
Mumps	6
Pneumonia	5
Scabies	1
Scarlet fever	172
Smallpox	13
Tuberculosis	5
Typhoid fever	1
Whooping cough	3

CONNECTICUT

	Cases
Chicken pox	126
Diphtheria	27
German measles	15
Influenza	13
Measles	211
Mumps	47
Pneumonia (broncho)	42
Pneumonia (lobar)	50
Scarlet fever	151
Septic sore throat	2
Tuberculosis (all forms)	25
Whooping cough	53

DELAWARE

Chicken pox	4
Measles	6
Mumps	3
Pneumonia	3
Scarlet fever	29
Tuberculosis	6
Whooping cough	3

FLORIDA

Chicken pox	56
Diphtheria	21
Malaria	2
Measles	153
Mumps	14
Pneumonia	12
Scarlet fever	14
Smallpox	52
Tetanus	1
Typhoid fever	14
Whooping cough	23

GEORGIA

Chicken pox	53
Diphtheria	10
Dysentery	4
Hookworm disease	1
Influenza	361
Malaria	13
Measles	244
Mumps	49
Pellagra	4
Pneumonia	35
Scarlet fever	12
Septic sore throat	7
Smallpox	88
Tetanus	1
Tuberculosis	16
Typhoid fever	1
Whooping cough	58

IDAHO

Chicken pox	4
Diphtheria	10
Measles	64
Mumps	8
Scarlet fever	19
Smallpox	11
Tuberculosis	3

ILLINOIS

	Cases
Cerebrospinal meningitis—Madison County	1
Chicken pox	351
Diphtheria	137
Influenza	54
Lethargic encephalitis	2
Measles	2,585
Mumps	517
Pneumonia	426
Poliomyelitis:	
Du Page County	1
Marshall County	1
Scarlet fever	348
Smallpox	61
Tuberculosis	176
Typhoid fever	11
Whooping cough	199

INDIANA

Chicken pox	120
Diphtheria	10
Influenza	21
Measles	200
Mumps	4
Pneumonia	8
Scarlet fever	213
Smallpox	158
Tuberculosis	32
Typhoid fever	3
Whooping cough	26

IOWA

Cerebrospinal meningitis:	
Iowa City	1
Sioux City	1
Chicken pox	39
Diphtheria	12
Measles	912
Mumps	33
Scarlet fever	77
Smallpox	47
Tuberculosis	7
Typhoid fever	1
Whooping cough	22

KANSAS

Cerebrospinal meningitis—Emporia	1
Chicken pox	168
Diphtheria	20
German measles	15
Influenza	10
Measles	1,105
Mumps	82
Pellagra	2
Pneumonia	49
Poliomyelitis.	
Kansas City	1
Marion	1
Scarlet fever	205
Smallpox	58
Trachoma	3
Tuberculosis	14
Typhoid fever	2
Whooping cough	62

LOUISIANA

Diphtheria	15
Influenza	26
Malaria	5
Measles	133

LOUISIANA—continued

	Cases
Pneumonia	31
Poliomyelitis	1
Scarlet fever	4
Smallpox	15
Trachoma	1
Tuberculosis	34
Typhoid fever	9
Whooping cough	12

MAINE

Cerebrospinal meningitis	1
Chicken pox	25
Conjunctivitis	1
Diphtheria	11
German measles	67
Influenza	3
Measles	141
Mumps	18
Pneumonia	11
Poliomyelitis	1
Scarlet fever	20
Tuberculosis	9
Typhoid fever	8
Vincent's angina	1
Whooping cough	47

MARYLAND [1]

Cerebrospinal meningitis	1
Chickenpox	117
Diphtheria	46
German measles	7
Influenza	370
Measles	61
Mumps	23
Paratyphoid fever	1
Pneumonia (broncho)	90
Pneumonia (lobar)	85
Scarlet fever	118
Septic sore throat	7
Smallpox	2
Tuberculosis	31
Typhoid fever	9
Whooping cough	118

MASSACHUSETTS

Cerebrospinal meningitis	1
Chicken pox	226
Conjunctivitis (suppurative)	5
Diphtheria	91
German measles	19
Influenza	22
Lethargic encephalitis	2
Measles	270
Mumps	396
Ophthalmia neonatorum	37
Pneumonia (lobar)	125
Scarlet fever	586
Septic sore throat	2
Tetanus	1
Tuberculosis (pulmonary)	121
Tuberculosis (other forms)	51
Typhoid fever	9
Whooping cough	153

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	108
Measles	286
Pneumonia	189
Scarlet fever	363
Smallpox	53
Tuberculosis	188
Typhoid fever	7
Whooping cough	145

MINNESOTA

Cerebrospinal meningitis	5
Chicken pox	154
Diphtheria	19
Influenza	3
Measles	228
Pneumonia	9
Poliomyelitis	1
Scarlet fever	257
Smallpox	1
Tuberculosis	43
Typhoid fever	6
Whooping cough	27

MISSISSIPPI

Diphtheria	7
Poliomyelitis	1
Scarlet fever	16
Smallpox	3
Typhoid fever	6

MISSOURI

Cerebrospinal meningitis	4
Chicken pox	102
Diphtheria	51
Epidemic sore throat	6
Influenza	11
Measles	254
Mumps	67
Ophthalmia neonatorum	1
Pneumonia	10
Rabies	2
Scarlet fever	132
Smallpox	29
Trachoma	8
Tuberculosis	56
Typhoid fever	1
Whooping cough	45

MONTANA

Cerebrospinal meningitis	8
Chicken pox	15
German measles	2
Measles	49
Mumps	22
Scarlet fever	56
Smallpox	25
Tuberculosis	2
Whooping cough	3

NEBRASKA

Chicken pox	43
Diphtheria	12
German measles	117
Influenza	36

NEBRASKA—continued

	Cases
Measles	200
Mumps	76
Pneumonia	2
Scarlet fever	45
Septic sore throat	4
Smallpox	15
Whooping cough	20

NEW JERSEY

Cerebrospinal meningitis	3
Chicken pox	374
Diphtheria	113
Dysentery	1
Influenza	63
Measles	40
Pneumonia	227
Poliomyelitis	1
Scarlet fever	387
Typhoid fever	3
Whooping cough	235

NEW MEXICO

Chicken pox	49
Conjunctivitis	1
Diphtheria	6
German measles	96
Influenza	2
Measles	75
Mumps	59
Pneumonia	7
Scarlet fever	15
Smallpox	4
Trachoma	2
Tuberculosis	36
Typhoid fever	1
Whooping cough	16

NEW YORK

(Exclusive of New York City)

Cerebrospinal meningitis	1
Chicken pox	423
Diphtheria	74
German measles	206
Lethargic encephalitis	1
Malaria	1
Measles	784
Mumps	444
Ophthalmia neonatorum	1
Pneumonia	333
Scarlet fever	369
Septic sore throat	2
Smallpox	9
Tetanus	1
Typhoid fever	12
Vincent's angina	16
Whooping cough	244

NORTH CAROLINA

Cerebrospinal meningitis	2
Chicken pox	170
Diphtheria	30
German measles	7
Measles	542
Ophthalmia neonatorum	1

[1] Deaths.

NORTH CAROLINA—continued

	Cases
Poliomyelitis	1
Scarlet fever	36
Smallpox	34
Whooping cough	774

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Cerebrospinal meningitis—	
Seminole County	2
Sequoyah County	1
Chicken pox	25
Diphtheria	13
Influenza	139
Measles	227
Mumps	38
Pneumonia	75
Scarlet fever	33
Smallpox	57
Typhoid fever	23
Whooping cough	22

OREGON

Cerebrospinal meningitis	2
Chicken pox	40
Diphtheria	16
Influenza	123
Measles	101
Mumps	15
Pneumonia	[1] 5
Scarlet fever	63
Smallpox	17
Tuberculosis	11
Whooping cough	1

PENNSYLVANIA

Cerebrospinal meningitis—Reading	1
Chicken pox	777
Diphtheria	232
German measles	147
Impetigo contagiosa	6
Lethargic encephalitis	4
Measles	804
Mumps	640
Pneumonia	324
Rabies	1
Scabies	9
Scarlet fever	705
Tuberculosis	175
Typhoid fever	20
Whooping cough	268

RHODE ISLAND

Cerebrospinal meningitis—Providence	1
Chicken pox	19
Diphtheria	9
Lethargic encephalitis	1
Measles	1
Ophthalmia neonatorum	1
Pneumonia	1
Scarlet fever	37
Tuberculosis	4
Whooping cough	2

SOUTH CAROLINA

	Cases
Chicken pox	93
Dengue	1
Diphtheria	21
Hookworm disease	24
Influenza	1,977
Malaria	91
Measles	94
Paratyphoid fever	2
Pellagra	53
Poliomyelitis	1
Scarlet fever	7
Smallpox	22
Tuberculosis	56
Typhoid fever	5
Whooping cough	106

SOUTH DAKOTA

	Cases
Chicken pox	9
Influenza	1
Measles	270
Mumps	3
Pneumonia	6
Scarlet fever	49
Smallpox	11
Typhoid fever	2
Whooping cough	9

TENNESSEE

	Cases
Chicken pox	37
Diphtheria	9
Influenza	164
Measles	163
Mumps	10
Pellagra	2
Pneumonia	48
Scarlet fever	21
Smallpox	15
Trachoma	1
Tuberculosis	27
Typhoid fever	14
Whooping cough	65

TEXAS

	Cases
Chicken pox	121
Diphtheria	32
Influenza	69
Measles	121
Mumps	30
Pellagra	1
Pneumonia	14
Scarlet fever	28
Smallpox	72
Trachoma	2
Tuberculosis	21
Typhoid fever	2
Whooping cough	49

UTAH

	Cases
Chicken pox	33
Diphtheria	10
German measles	29
Influenza	2
Measles	234
Mumps	5
Pneumonia	8
Scarlet fever	21
Smallpox	9
Tuberculosis	1

UTAH—continued

	Cases
Typhoid fever	1
Whooping cough	30

VERMONT

	Cases
Chicken pox	20
Measles	64
Mumps	74
Scarlet fever	4
Whooping cough	25

WASHINGTON

	Cases
Cerebrospinal meningitis	4
Chicken pox	90
Diphtheria	14
German measles	333
Measles	230
Mumps	122
Scarlet fever	91
Smallpox	36
Tuberculosis	2
Typhoid fever	3
Whooping cough	33

WEST VIRGINIA

	Cases
Chicken pox	86
Diphtheria	16
Influenza	37
Measles	218
Scarlet fever	29
Smallpox	66
Tuberculosis	16
Typhoid fever	1
Whooping cough	71

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	5
Chicken pox	107
Diphtheria	28
German measles	4
Influenza	1
Measles	78
Mumps	79
Pneumonia	32
Scarlet fever	58
Tuberculosis	24
Whooping cough	30
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	112
Diphtheria	12
German measles	22
Influenza	69
Measles	496
Mumps	175
Pneumonia	20
Poliomyelitis	1
Scarlet fever	127
Smallpox	6
Whooping cough	63

WYOMING

	Cases
Chicken pox	5
German measles	10
Measles	82
Mumps	17
Pneumonia (lobar)	1
Scarlet fever	30
Smallpox	6
Tuberculosis (pulmonary)	1

Reports for Week Ended March 12, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	75
Diphtheria	24
Influenza	18
Measles	7
Pneumonia	51
Scarlet fever	14
Tuberculosis	20
Whooping cough	10

ILLINOIS

	Cases
Cerebrospinal meningitis	4
Chicken pox	371
Diphtheria	123
Influenza	63
Lethargic encephalitis	4
Measles	2,539
Mumps	674
Pneumonia	440
Scarlet fever	348
Smallpox	149
Tuberculosis	311
Typhoid fever	11
Whooping cough	243

IOWA

	Cases
Cerebrospinal meningitis—Fort Dodge	1
Chicken pox	73

IOWA—continued

	Cases
Diphtheria	28
German measles	2
Measles	787
Mumps	16
Pneumonia	1
Scarlet fever	120
Smallpox	16
Tuberculosis	12
Typhoid fever	1
Whooping cough	35

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	23
Diphtheria	4
German measles	1
Measles	216
Mumps	12
Pneumonia	5
Poliomyelitis	2
Scarlet fever	54
Smallpox	1
Tuberculosis	3
Typhoid fever	1
Whooping cough	8

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
December, 1926										
Arkansas	1	37	313	108	22	16	0	51	12	41
January, 1927										
Arkansas	3	58	539	87	45	26	0	44	20	41
Delaware	1	18	4		6		0	167	0	0
District of Columbia	0	85	17		8	1	0	123	1	0
February, 1927										
Arizona	1	12	1		76		0	94	2	5
District of Columbia	1	104	52		16	1	0	78	3	3
New Jersey	7	442	148		218		2	1,432	0	20
North Dakota	9	10	4		468		0	302	18	6
Vermont		5			367		0		0	6

December, 1926

	Cases
Arkansas:	
Chicken pox	89
Hookworm disease	9
Mumps	31
Whooping cough	59

January, 1927

	Cases
Anthrax:	
Delaware	3
Chicken pox:	
Arkansas	190
Delaware	12
District of Columbia	278

[1] Includes 20 cases in delayed report for February.

January, 1927—Continued

	Cases
Hookworm disease:	
Arkansas	5
Mumps:	
Arkansas	76
Ophthalmia neonatorum:	
Arkansas	3
Paratyphoid fever:	
Arkansas	1
Rabies in animals:	
District of Columbia	5

January, 1927—Continued

	Cases
Whooping cough:	
Arkansas	156
Delaware	20
District of Columbia	44

February, 1927

	Cases
Anthrax:	
New Jersey	1
Chicken pox:	
Arizona	108
District of Columbia	262
New Jersey	1,278
North Dakota	53
Vermont	146
German measles:	
New Jersey	71
North Dakota	202
Lead poisoning:	
New Jersey	4

February, 1927—Continued

	Cases
Lethargic encephalitis:	
District of Columbia	5
Mumps:	
Arizona	9
North Dakota	29
Vermont	191
Ophthalmia neonatorum:	
New Jersey	1
Rabies in animals:	
District of Columbia	7
Vermont	16
Trachoma:	
Arizona	2
New Jersey	1
Whooping cough:	
Arizona	22
District of Columbia	72
New Jersey	990
North Dakota	12
Vermont	177

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,570,000. The estimated population of the 94 cities reporting deaths is more than 29,900,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 5, 1927, and March 6, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	1,520	1,811	
100 cities	714	1,081	931
Measles:			
39 States	21,715	15,178	
100 cities	10,861	5,041	
Poliomyelitis:			
41 States	18	11	
Scarlet fever:			
41 States	4,832	6,216	
100 cities	1,665	2,452	1,275
Smallpox:			
41 States	983	984	
100 cities	287	117	148
Typhoid fever:			
41 States	166	243	
100 cities	57	52	37
Deaths reported			
Influenza and pneumonia:			
94 cities	1,806	1,132	
Smallpox (94 cities)	9	0	
Los Angeles	8	0	
San Francisco	1	0	

City reports for week ended March 5, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	8	2	0	0	0	3	1	4
New Hampshire:									
Concord	22,546	0	0	1	0	0	13	0	0
Manchester	83,097	0	3	0	0	1	0	0	3
Nashua	29,723	0	0	0	0	0	0	0	2
Vermont:									
Barre	10,008	0	1	3	0	0	2	0	0
Burlington	24,089	2	0	1	0	0	0	1	1
Massachusetts:									
Boston	779,620	91	57	35	7	1	41	132	29
Fall River	128,993	6	4	8	1	1	0	1	4
Springfield	142,065	5	3	4	2	1	1	5	2
Worcester	190,757	2	3	2	2	0	0	4	8
Rhode Island:									
Pawtucket	69,760	3	1	0	0	0	0	0	0
Providence	267,918	0	10	7	0	1	2	0	8
Connecticut									
Bridgeport	(1)	2	8	7	1	0	9	4	3
Hartford	160,197	5	9	3	0	0	3	6	15
New Haven	178,927	23	2	0	0	0	0	2	14
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	21	12	10	--------	1	6	14	17
New York	5,873,356	368	188	328	150	27	28	0	228
Rochester	316,786	6	10	8	--------	1	10	0	7
Syracuse	182,003	16	5	1	--------	0	13	5	5
New Jersey:									
Camden	128,642	17	5	12	1	1	3	0	7
Newark	452,513	58	17	9	16	0	9	53	13
Trenton	132,020	6	4	1	0	1	0	1	10
Pennsylvania:									
Philadelphia	1,979,364	139	77	68	--------	17	17	97	66
Pittsburgh	631,563	61	21	14	--------	1	51	2	34
Reading	112,707	5	3	2	--------	0	0	40	5
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	13	9	16	0	2	1	24	12
Cleveland	936,485	121	28	59	14	2	1	40	36
Columbus	279,836	13	4	8	0	2	5	0	5
Toledo	287,380	28	6	3	2	2	7	10	7
Indiana:									
Fort Wayne	97,846	4	3	0	0	0	29	0	4
Indianapolis	358,819	69	8	6	0	0	9	17	10
South Bend	80,091	1	1	2	0	0	33	0	2
Terre Haute	71,071	4	1	1	0	0	16	0	1
Illinois:									
Chicago	2,995,239	95	89	86	24	17	1,302	136	65
Peoria	81,564	4	1	0	0	0	24	10	3
Springfield	63,923	10	1	0	4	5	111	0	2

[1] No estimate made.

City reports for week ended March 5, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit	1,245,824	107	58	57	8	7	25	105	40
Flint	130,316	55	5	2	0	0	8	0	5
Grand Rapids	153,698	5	3	0	0	0	1	0	1
Wisconsin:									
Kenosha	50,891	3	2	0	0	0	153	41	0
Madison	46,385	16	0	1	0	0	8	1	3
Milwaukee	509,192	96	16	26	0	0	50	73	14
Racine	67,707	12	2	0	0	0	14	33	1
Superior	39,671	0	0	1	0	0	1	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	15	1	0	0	0	35	0	0
Minneapolis	425,435	76	16	15	0	6	8	1	9
St. Paul	246,001	48	14	7	0	0	13	2	15
Iowa:									
Davenport	52,469	0	1	0	0	--------	7	1	--------
Des Moines	141,441	0	3	2	0	--------	15	0	--------
Sioux City	76,411	8	2	0	0	--------	18	1	--------
Waterloo	36,771	7	0	2	0	--------	130	1	--------
Missouri:									
Kansas City	367,481	42	8	2	0	1	52	16	13
St. Joseph	78,342	2	2	0	0	1	7	0	4
St. Louis	821,543	22	46	30	0	0	24	41	--------
North Dakota:									
Fargo	26,403	1	0	0	0	0	63	3	1
Grand Forks	14,811	0	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15,036	4	0	0	0	--------	57	1	--------
Sioux Falls	30,127	0	1	0	0	--------	1	0	--------
Nebraska:									
Lincoln	60,941	11	1	3	0	0	40	0	2
Omaha	211,768	17	4	0	0	0	90	33	7
Kansas:									
Topeka	55,411	6	1	1	0	0	40	1	0
Wichita	88,367	30	3	1	0	0	1	1	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	9	2	1	0	0	1	0	0
Maryland:									
Baltimore	796,296	143	26	43	278	12	3	12	59
Cumberland	33,741	3	0	3	0	0	0	0	2
Frederick	12,035	0	0	0	0	0	0	1	0
District of Columbia:									
Washington	497,906	59	13	36	21	8	4	0	34
Virginia:									
Lynchburg	30,395	16	0	3	0	0	6	0	0
Norfolk	(1)	4	1	0	0	0	43	1	7
Richmond	186,403	2	3	3	0	0	218	2	4
Roanoke	58,208	7	1	0	0	0	0	1	2
West Virginia:									
Charleston	49,019	10	0	0	0	1	1	0	0
Wheeling	56,208	8	1	1	0	3	8	0	2
North Carolina:									
Raleigh	30,371	7	1	1	0	0	0	0	0
Wilmington	37,061	6	0	0	0	0	2	5	1
Winston-Salem	69,031	17	0	3	0	1	1	19	3
South Carolina:									
Charleston	73,125	5	0	0	32	1	22	0	1
Columbia	41,225	7	1	1	0	--------	0	8	--------
Greenville	27,311	1	1	0	0	0	0	1	2
Georgia:									
Atlanta	(1)	5	2	5	89	0	38	4	7
Brunswick	16,809	0	0	0	0	0	3	0	0
Savannah	93,134	1	1	2	13	0	0	0	2
Florida:									
Miami	69,754	20	2	3	1	0	4	6	1
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	0
Tampa	94,743	4	2	6	0	0	90	1	1

[1] No estimate made.

City reports for week ended March 5, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	3	1	1	0	0	0	0	2
Louisville	305,935	14	6	6	2	0	0	5	17
Tennessee:									
Memphis	174,533	11	4	2	0	3	5	0	10
Nashville	136,220	11	1	3	0	0	0	2	9
Alabama:									
Birmingham	205,670	7	2	3	10	1	61	1	11
Mobile	65,955	1	1	0	0	0	30	1	2
Montgomery	46,481	9	0	1	0	0	10	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	4	1	0	0		46	12	
Little Rock	74,216	0	0	2	0	0	0	0	2
Louisiana:									
New Orleans	414,493	1	11	14	4	5	85	0	18
Shreveport	57,857	10	1	0	0	0	0	14	2
Oklahoma:									
Oklahoma City	(1)	0	1	2	3	0	0	0	3
Texas.									
Dallas	194,450	22	5	10	0	1	38	4	5
Galveston	48,375	0	1	0	0	0	0	0	2
Houston	164,954	4	2	5	0	0	4	2	6
San Antonio	198,069	1	2	5	0	3	1	0	8
MOUNTAIN									
Montana:									
Billings	17,971	2	0	2	0	0	4	0	0
Great Falls	29,883	5	1	0	0	0	3	2	1
Helena	12,037	1	0	0	0	0	1	0	1
Missoula	12,668	6	0	0	0	0	0	33	0
Idaho:									
Boise	23,042	0	0	0	0	0	11	2	0
Colorado:									
Denver	280,911	16	9	14		5	798	1	8
Pueblo	43,787	18	1	0	0	0	17	0	0
New Mexico:									
Albuquerque	21,000	4	0	0	0	0	63	10	0
Arizona:									
Phoenix	38,669	0	0	0	0	0	4	0	3
Utah:									
Salt Lake City	130,948	13	2	9	6	1	73	0	4
Nevada:									
Reno	12,665	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	50	6	0	0		23	78	
Spokane	108,897	11	2	1	0		47	0	
Tacoma	104,455	0	2	4	0	0	39	3	3
Oregon:									
Portland	282,383	9	6	4	3	4	54	3	7
California:									
Los Angeles	(1)	92	34	23	47	4	835	19	19
Sacramento	72,260	4	1	3	0	0	56	7	1
San Francisco	557,530	53	21	20	4	1	160	81	12

1 No estimate made.

City reports for week ended March 5, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	4	1	0	0	0	0	0	1	0	11	24
New Hampshire:											
Concord	1	4	0	0	0	0	0	0	0	0	9
Manchester	3	0	0	0	0	1	0	0	0	0	23
Nashua	0	2	0	0	0	3	0	0	0	0	13
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	3
Burlington	1	1	0	0	0	0	0	0	0	0	8
Massachusetts:											
Boston	70	128	0	0	0	12	2	0	0	19	220
Fall River	3	3	0	0	0	5	1	0	0	1	34
Springfield	7	5	0	0	0	3	0	0	0	5	34
Worcester	9	12	0	0	0	2	0	0	0	8	64
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	2	8
Providence	8	10	0	0	0	6	0	0	0	4	78
Connecticut:											
Bridgeport	11	11	0	0	0	4	0	0	0	0	43
Hartford	6	6	0	0	0	2	0	0	0	8	55
New Haven	10	2	0	0	0	1	0	0	0	4	40
MIDDLE ATLANTIC											
New York:											
Buffalo	21	28	0	0	0	9	1	0	0	12	146
New York	257	783	0	0	0	[1] 126	6	8	0	101	1,517
Rochester	16	13	0	0	0	1	1	0	0	9	65
Syracuse	15	16	0	0	0	1	0	0	0	0	52
New Jersey:											
Camden	4	6	0	0	0	0	0	0	0	0	34
Newark	25	68	0	0	0	8	0	0	0	45	103
Trenton	5	0	0	0	0	0	1	0	0	2	42
Pennsylvania:											
Philadelphia	81	135	0	0	0	22	3	1	0	27	525
Pittsburgh	32	25	0	0	0	13	0	1	0	6	202
Reading	3	7	0	0	0	3	0	0	0	1	27
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	47	2	0	0	12	1	1	0	2	124
Cleveland	47	88	1	0	0	20	1	0	0	11	201
Columbus	12	12	3	0	0	1	0	0	0	9	85
Toledo	14	4	3	0	0	5	0	0	0	33	87
Indiana:											
Fort Wayne	5	5	0	12	0	0	0	0	0	0	25
Indianapolis	11	32	13	12	0	7	0	0	0	20	08
South Bend	3	4	1	0	0	0	0	0	0	1	13
Terre Haute	3	3	1	2	0	1	0	0	0	0	18
Illinois:											
Chicago	129	151	3	4	0	49	3	6	1	76	750
Peoria	4	2	1	0	0	0	0	0	0	0	21
Springfield	2	2	1	0	0	0	0	0	0	1	29
Michigan:											
Detroit	93	122	3	0	0	25	1	1	0	80	314
Flint	6	53	0	1	0	1	0	0	0	4	38
Grand Rapids	9	18	1	0	0	1	1	0	0	5	32
Wisconsin:											
Kenosha	3	8	1	0	0	0	0	0	0	6	7
Madison	4	4	0	0	0	1	0	0	0	23	11
Milwaukee	29	48	3	0	0	5	0	1	0	35	122
Racine	3	2	1	0	0	1	0	0	0	17	10
Superior	3	4	4	0	0	1	0	0	0	0	11

[1] Pulmonary tuberculosis only.

City reports for week ended March 5, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	3	1	0	0	2	1	0	0	0	16
Minneapolis	50	76	10	0	0	2	0	2	0	1	113
St. Paul	32	33	7	1	0	2	0	0	1	0	69
Iowa:											
Davenport	2	0	2	1	--------	--------	0	0	--------	0	--------
Des Moines	8	11	2	0	--------	--------	0	0	--------	0	--------
Sioux City	2	1	1	5	--------	--------	0	0	--------	6	--------
Waterloo	2	0	1	0	--------	--------	0	0	--------	1	--------
Missouri:											
Kansas City	11	35	2	11	0	7	1	0	0	10	97
St. Joseph	2	8	0	0	0	1	0	0	0	2	30
St. Louis	32	42	5	2	0	12	1	1	0	28	235
North Dakota:											
Fargo	2	4	0	0	0	0	0	0	0	0	13
Grand Forks	0	7	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	3	7	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	3	1	0	0	--------	--------	0	0	--------	0	--------
Nebraska:											
Lincoln	2	0	0	0	0	0	0	1	0	0	19
Omaha	5	13	10	3	0	4	0	0	0	0	65
Kansas:											
Topeka	2	2	0	5	0	1	0	0	0	8	20
Wichita	2	7	1	0	0	0	0	2	0	2	23
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	19	0	0	0	1	0	0	0	3	27
Maryland:											
Baltimore	40	30	1	0	0	14	2	2	1	67	276
Cumberland	1	0	0	0	0	0	0	0	0	1	11
Frederick	1	3	0	0	0	0	0	0	0	0	6
District of Columbia:											
Washington	27	20	1	1	0	13	1	3	0	9	185
Virginia:											
Lynchburg	0	1	0	0	0	0	0	0	0	0	8
Norfolk	2	2	1	0	0	6	0	0	0	8	--------
Richmond	4	3	0	0	0	0	0	1	0	8	10
Roanoke	1	1	1	0	0	1	0	0	0	1	15
West Virginia:											
Charleston	0	0	1	0	0	3	0	0	0	3	18
Wheeling	2	2	0	0	0	1	0	0	0	5	18
North Carolina:											
Raleigh	1	1	1	0	0	0	0	0	0	15	10
Wilmington	0	1	0	0	0	1	0	0	0	12	12
Winston-Salem	0	0	3	0	0	0	0	0	0	39	21
South Carolina:											
Charleston	0	2	0	0	0	4	1	0	0	0	18
Columbia	0	1	1	2	--------	--------	0	0	--------	1	--------
Greenville	0	0	1	0	0	0	0	0	0	0	5
Georgia:											
Atlanta	4	12	3	24	0	5	0	0	0	10	90
Brunswick	0	0	0	1	0	1	0	0	0	0	5
Savannah	1	0	1	1	0	2	0	0	0	2	17
Florida:											
Miami	1	0	--------	0	0	1	1	0	1	6	41
St. Petersburg	0	--------	1	--------	0	2	0	--------	0	--------	13
Tampa	1	2	0	0	0	3	1	7	1	0	36

City reports for week ended March 5, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	1	1	0	0	3	0	0	0	0	27
Louisville	5	13	0	1	0	5	0	0	0	60	97
Tennessee:											
Memphis	4	18	2	15	0	2	1	1	0	13	72
Nashville	4	5	2	0	0	4	1	1	0	3	51
Alabama:											
Birmingham	2	6	8	6	0	7	0	5	0	6	60
Mobile	0	0	2	2	0	1	0	1	0	0	24
Montgomery	0	0	0	0	0	0	0	0	0	7	8
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	1	0	--------	1	0	0	--------	11	5
Little Rock	1	1	0	0	0	1	0	0	0	0	--------
Louisiana:											
New Orleans	6	0	2	0	0	16	2	0	0	1	169
Shreveport	1	0	1	1	0	3	0	0	0	3	16
Oklahoma:											
Oklahoma City	3	0	3	4	0	0	0	0	1	5	23
Texas:											
Dallas	2	9	5	6	0	2	0	1	0	3	45
Galveston	1	2	1	0	0	0	1	0	0	0	11
Houston	1	3	3	5	0	2	0	1	0	0	60
San Antonio	1	1	1	0	0	9	1	0	0	0	68
MOUNTAIN											
Montana:											
Billings	1	4	0	0	0	1	0	0	0	0	4
Great Falls	2	6	1	0	0	0	0	0	0	0	7
Helena	0	0	0	0	0	0	0	0	0	1	5
Missoula	1	14	0	0	0	0	0	0	0	0	2
Idaho:											
Boise	1	1	1	0	0	0	0	0	0	0	3
Colorado:											
Denver	15	80	2	0	0	5	0	0	0	0	99
Pueblo	1	4	0	0	0	2	0	1	0	0	12
New Mexico:											
Albuquerque	1	4	0	0	0	11	0	0	0	0	18
Arizona:											
Phoenix	0	4	0	0	0	6	--------	0	0	0	25
Utah:											
Salt Lake City	3	9	1	0	0	3	0	0	0	6	45
Nevada:											
Reno	0	2	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	10	8	4	0	--------	--------	0	1	--------	10	--------
Spokane	5	28	5	4	--------	--------	0	0	--------	8	--------
Tacoma	3	8	3	0	0	0	0	0	0	1	26
Oregon:											
Portland	5	14	9	0	0	3	0	0	0	3	62
California:											
Los Angeles	27	41	8	0	0	37	1	1	0	18	266
Sacramento	1	0	0	1	0	6	0	1	0	0	28
San Francisco	15	41	6	0	0	13	1	0	0	5	167

City reports for week ended March 5, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	2	2	1	0	1	1	0
Worcester	0	0	0	0	0	0	0	0	1
MIDDLE ATLANTIC									
New York:									
New York	4	2	7	5	0	0	1	1	0
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Pennsylvania.									
Philadelphia	0	1	0	0	0	0	0	0	0
Pittsburgh	1	1	0	0	0	0	1	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Cleveland	1	0	1	0	0	0	0	0	0
Toledo	0	0	1	0	0	0	0	0	0
Illinois:									
Chicago	2	1	0	0	0	0	0	0	0
Michigan:									
Detroit	2	0	2	0	0	0	1	1	0
Wisconsin:									
Milwaukee	2	2	0	0	0	0	0	0	0
Racine	0	0	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	2	1	0	0	0	0	0	0	0
Minneapolis	0	1	0	0	0	0	0	0	0
Missouri.									
St. Louis	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	0	1	1	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	0	1	0	0	0
Florida:									
Miami	1	0	0	0	0	0	0	0	0
St. Petersburg	0	1	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	1	0	0	0	0	0	0
Tennessee:									
Memphis	0	0	0	1	0	1	0	0	0
Nashville	1	0	0	0	0	0	0	0	0
Alabama:									
Mobile	0	0	0	0	0	1	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
Dallas	0	0	0	0	1	0	0	0	0
Houston	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Pueblo	1	1	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland	3	1	0	0	0	0	0	0	0
California:									
Los Angeles	1	0	1	1	0	0	0	0	0
San Francisco	0	0	1	1	0	0	0	0	0

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended March 5, 1927, compared with those for a like period ended March 6, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, January 30 to March 5, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended									
	Feb 6, 1926	Feb 5, 1927	Feb 13, 1926	Feb. 12, 1927	Feb 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
101 cities	134	195	[2] 136	178	137	204	134	[3] 170	[4] 124	182
New England	97	146	123	174	116	132	101	149	94	163
Middle Atlantic	129	229	141	188	132	277	119	200	111	224
East North Central	119	202	[2] 132	179	134	169	141	198	123	177
West North Central	222	123	171	155	206	165	246	109	[4] 241	115
South Atlantic	132	143	134	223	104	192	73	192	108	196
East South Central	41	127	47	61	57	87	52	[3] 113	47	82
West South Central	137	235	116	151	90	172	116	197	103	151
Mountain	128	189	173	153	219	162	210	72	73	234
Pacific	188	217	139	168	204	188	214	152	188	134

MEASLES CASE RATES

	Feb 6, 1926	Feb 5, 1927	Feb 13, 1926	Feb. 12, 1927	Feb 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
101 cities	1,481	560	[2] 1,719	642	1,995	784	2,066	[3] 844	[4] 1,884	858
New England	2,403	378	2,342	339	2,703	181	2,184	228	2,441	172
Middle Atlantic	1,350	41	1,514	45	1,917	69	2,044	75	1,843	68
East North Central	2,155	647	[2] 2,637	738	2,933	899	3,081	930	2,695	1,078
West North Central	395	455	551	685	676	566	901	963	[4] 842	955
South Atlantic	2,557	538	3,086	361	3,248	795	3,269	654	2,675	797
East South Central	708	270	729	453	957	409	1,231	[3] 492	1,319	540
West South Central	34	570	13	457	9	570	9	600	17	730
Mountain	91	7,237	109	7,866	137	9,691	82	10,653	210	8,154
Pacific	104	1,542	166	2,225	201	2,780	161	2,872	276	3,037

SCARLET FEVER CASE RATES

	Feb 6, 1926	Feb 5, 1927	Feb 13, 1926	Feb. 12, 1927	Feb 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
101 cities	298	402	[2] 298	392	309	439	285	[3] 425	[4] 289	419
New England	401	508	361	536	361	469	354	541	347	423
Middle Atlantic	209	434	197	424	208	582	187	532	185	533
East North Central	338	319	[2] 359	327	372	323	340	365	346	398
West North Central	754	522	782	500	782	542	706	447	[4] 807	445
South Atlantic	162	246	169	259	149	250	199	219	162	181
East South Central	119	245	114	224	243	245	171	[3] 189	186	219
West South Central	137	126	107	75	107	67	112	117	90	67
Mountain	155	1,519	219	1,250	237	1,250	100	1,196	337	1,079
Pacific	324	437	308	390	330	340	311	314	311	330

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Covington, Ky., not included.
[4] Kansas City, Mo., not included.

Summary of weekly reports from cities January 30 to March 5, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended									
	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
101 cities	47	25	[2] 53	26	41	33	41	[3] 25	[4] 50	22
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	1	0	0	0	0	0	0	0
East North Central	16	22	[2] 23	15	33	28	18	15	23	21
West North Central	52	54	32	71	65	81	79	64	[4] 61	54
South Atlantic	101	43	80	63	50	60	65	45	99	53
East South Central	41	102	52	82	103	132	52	[3] 76	67	122
West South Central	155	80	112	67	142	63	133	50	193	50
Mountain	73	9	73	18	36	27	46	0	36	0
Pacific	321	63	458	76	193	94	244	105	300	13

TYPHOID FEVER CASE RATES

	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
101 cities	7	7	[2] 6	7	7	9	5	[3] 8	[4] 10	9
New England	14	9	5	5	7	2	5	9	12	2
Middle Atlantic	3	9	6	5	4	10	2	1	4	5
East North Central	3	5	[2] 4	2	5	4	1	6	5	6
West North Central	6	4	4	6	6	10	2	8	[4] 0	10
South Atlantic	13	5	15	18	4	24	11	29	6	24
East South Central	21	5	10	10	5	31	10	[3] 27	10	41
West South Central	4	17	0	13	21	8	30	4	39	8
Mountain	36	0	0	0	18	0	18	18	146	9
Pacific	16	8	13	18	16	3	8	8	16	8

INFLUENZA DEATH RATES

	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
95 cities	34	19	[2] 33	24	50	23	46	[3] 22	[4] 51	25
New England	12	5	19	2	2	9	19	12	12	9
Middle Atlantic	20	21	15	28	27	25	39	22	68	21
East North Central	12	9	[2] 11	22	11	19	14	17	14	23
West North Central	19	12	4	15	19	23	23	10	[4] 5	17
South Atlantic	68	28	64	24	138	31	96	42	47	48
East South Central	103	56	62	36	160	41	134	[3] 43	259	20
West South Central	168	65	282	39	278	39	212	26	124	39
Mountain	109	45	128	72	109	27	100	54	109	54
Pacific	67	7	35	21	95	17	35	17	32	17

PNEUMONIA DEATH RATES

	Feb. 6, 1926	Feb. 5, 1927	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927
95 cities	206	168	[2] 212	148	259	146	259	[3] 164	[4] 269	172
New England	200	188	156	165	175	102	165	183	186	202
Middle Atlantic	213	197	212	174	290	149	317	177	358	193
East North Central	145	122	[2] 161	128	181	120	179	146	207	134
West North Central	125	135	78	96	127	91	108	91	[4] 97	104
South Atlantic	346	226	408	171	490	239	454	257	342	224
East South Central	248	199	222	112	295	168	300	[3] 108	310	260
West South Central	362	151	516	146	516	207	353	104	362	185
Mountain	228	144	328	144	173	189	410	135	237	126
Pacific	184	121	110	114	173	176	141	131	117	121

[2] Madison, Wis., not included.
[3] Covington, Ky., not included.
[4] Kansas City, Mo., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926, and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended February 26, 1927.—The following report for the week ended February 26, 1927, was transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	6	6	0	0	0	0
British India:						
Karachi	----	0	----	0	2	1
Bombay	----	2	----	0	48	25
Calcutta	----	0	----	43	170	105
Rangoon	----	4	----	5	27	6
Madras	----	0	----	0	32	----
Straits Settlements. Singapore	0	0	0	0	1	0

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Siam: Bangkok	0	0	13	5	6	5
China:						
Shanghai	0	0	0	0	----	1
Hongkong	0	0	0	0	8	6
Union of Socialist Soviet Republics: Vladivostok	0	0	0	0	7	----
Manchuria. Mukden	0	0	0	0	1	1

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin, Negapatam, Vizagapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Samarinda, Makassar, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Padang, Palembang, Tarakan, Samarinda, Balikpapan, Surabaya.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawau.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Turane, Saigon and Cholon.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow, Changchun.

Kwantung.—Port Arthur, Dairen.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—St. Denis.
Mauritius.—Port Louis.
Madagascar.—Tamatave, Majunga.

Other epidemiological information received by the Singapore bureau:

Hongkong.—Steamship *Takliua* arrived on February 28 from Shanghai infected with smallpox.

INFLUENZA IN FOREIGN COUNTRIES

A telegram from the health section of the Secretariat of the League of Nations, received March 17, 1927, states that the influenza epidemic is decreasing everywhere in Europe. During the week ended March 12, 572 deaths from influenza were reported in 105 great towns of England. In Bulgaria, 177 influenza deaths occurred during the week ended March 12. For the last week in February, 299 deaths from influenza were reported in Yugoslavia.

ANGOLA (PORTUGUESE WEST AFRICA)

Disease conditions—Loanda and vicinity.—Under date of February 9, 1927, prevailing diseases were reported for Loanda, Angola, and the surrounding country, as follows: Blackwater fever, chicken pox, influenza, malaria, sleeping sickness, smallpox, tuberculosis, whooping cough, and diseases of the skin.

Loanda—Mortality—January 1-15, 1927.—During the period January 1 to 15, 1927, 32 deaths from all causes were reported at Loanda, Angola. Population, 20,000.

BRAZIL

Plague—Porto Alegre—January 23, 1927.—Information received under date of February 21, 1927, shows the occurrence on January 23, 1927, at Porto Alegre, Brazil, of two fatal cases of plague. The occurrence was in employees of the garbage-collecting department, who came in contact with a dead rat.

CANADA

Communicable diseases—Week ended March 5, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in six Provinces of Canada for the week ended March 5, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Manitoba	Saskatchewan	Alberta	Total
Influenza	9			5	4		18
Smallpox				1	2	14	17
Typhoid fever		1	16	3			20

ESTONIA

Communicable diseases—December, 1926.—During the month of December, 1926, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Diphtheria	49	Tuberculosis	142
Measles	994	Typhoid fever	79
Paratyphus fever	9	Typhus fever	1
Scarlet fever	605		

Population, 1,107,059.

SENEGAL

Relapsing fever—Dakar—February 16, 1927.—Under date of February 16, 1927, a case of relapsing fever, occurring in a native, was reported at Dakar, Senegal.

TUNISIA

Pneumonic plague—Achache District—February 11, 1927.—Information received under date of March 1, 1927, shows the occurrence, reported February 11, 1927, of 13 fatal cases of pneumonic plague in the district of Achache, Tunisia, and a further fatal case reported February 14, 1927.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

Reports Received During Week Ended March 25, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Calcutta	Jan. 23-29	47	38	Declared epidemic since week ended Dec. 11, 1926.
Rangoon	do	1	1	
Siam				Jan. 23-29, 1927: Cases, 28; deaths, 20. Apr. 1, 1926-Jan. 1, 1927: Cases, 7,847; deaths, 5,164.
Bangkok	Jan. 2-29	1	1	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Brazil:				
Porto Alegre	Jan. 23	2	2	
Ceylon:				
Colombo	Jan. 23-Feb. 5	2	2	2 plague rodents.
India:				
Madras Presidency	Jan. 16-22	119	85	
Rangoon	Jan. 23-29	6	5	
Iraq:				
Baghdad	Jan. 30-Feb. 5	1		
Java:				
Batavia	Jan. 23-29	35	35	Province.
East Java and Madura	Jan. 9-15	1	1	
Siam				Jan. 23-29, 1927: One case. Apr. 1, 1926-Jan. 29, 1927: Cases, 32; deaths, 23.
Tunisia:				
Acheche District	Feb. 11-14	14	14	Pneumonic.

[1] From medical officers of the Public Health Service, American consuls and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended March 25, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Feb. 1-10	2		
Canada	Feb. 27-Mar. 5			Cases, 17.
Alberta	do	14		
British Columbia—				
Vancouver	Feb. 28-Mar. 6	1		
Manitoba	Feb. 27-Mar. 5	1		
Ontario—				
Toronto	do	1		
Saskatchewan	do	2		
China:				
Hongkong	Jan. 23-Feb. 5	6	3	Mar. 8, 1927: Cases, 16; deaths, 12; Hindu, 3. Imported—Cases, 5.
Manchuria—				
Harbin	Jan. 29-Feb. 4	3		
Shanghai	Jan. 30-Feb. 5		1	International settlement.
France:				
Paris	Feb. 1-10	3	1	
Great Britain:				
England and Wales	Feb. 6-19	825		
Guatemala:				
Guatemala	Jan. 1-31		23	
India:				
Calcutta	Jan. 23-29	135	98	
Karachi	Feb. 6-12		1	
Madras	do	33		
Rangoon	Jan. 23-29	4	1	
Mexico:				
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
San Luis Potosi	Feb. 27-Mar. 5		2	
Peru:				
Arequipa	Jan. 1-31		1	
Portugal:				
Lisbon	Feb. 13-19	9		
Siam				Apr. 1, 1926-Jan. 29, 1927: Cases, 724; deaths, 277.
Bangkok	Jan. 23-29	5	2	
Spain:				
Valencia	Feb. 15-21	1		
Straits Settlements:				
Singapore	Jan. 2-15	3	3	
Tunisia:				
Tunis	Jan. 1-10	1		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany District	Jan. 23-29			Outbreak. Municipal location.
Transvaal—				
Bethal District	do			Outbreak. On farm.
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Feb. 1-10	7		
Chile:				
Valparaiso	Feb. 13-19	1		
Estonia				December, 1926: 1 case.
Palestine:				
Jaffa	Feb. 15-21	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov 14-Dec. 11			Do.
Chosen	Sept. 1-Oct 31	252	159	
French Settlements in India	Aug 29-Dec. 4	130	96	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-8			Cases, 3,080, deaths, 1,757.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	395	313	
Do	Jan. 2-22	236	177	
Madras	Dec 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov 21-Jan. 1	11	7	
Do	Jan. 2-22	2	2	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925. Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925. Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925. Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925 Case, 1
Tonkin	do	784	482	July, 1925 Cases, 3; death, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847, deaths, 5,164.
Do	Jan. 2-22	64	47	
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-22	5	1	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Azores:				
St. Michael's Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Rio de Janeiro	Nov 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-22	18	7	5 plague rodents.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Mongolia	Reported Dec. 21.	500		
Nanking	Oct. 31–Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1–Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1–15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1–Dec. 9			Cases, 119.
Do	Jan. 1–28			Cases, 13.
Alexandria	Nov. 19–Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3–9	2		
Marsa Matrah	Dec. 23–29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19–Dec. 20	3		
Greece	Nov. 1–30	10	1	Athens and Piræus.
Athens	Nov. 1–Dec. 31	9	4	
Patras	Nov. 28–Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10–Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2–8			Cases, 1,766; deaths, 1,200.
Bombay	Nov. 21–27	1	1	
Do	Jan. 16–22	2	2	
Madras	Oct. 31–Jan. 1	581	324	
Do	Jan. 2–15	214	125	
Rangoon	Nov. 14–Dec. 25	11	9	
Do	Jan. 2–22	10	10	
Indo-China	July 1–31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No cases.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Java:				
Batavia	Nov. 7–Jan. 1	91	90	Province.
Do	Jan. 2–22	66	62	
East Java and Madura	Dec. 19–Jan. 1	3	3	
Do	Jan. 2–8	2	2	
Surabaya	Oct. 24–Dec. 18	14	14	
Madagascar:				
Province—				
Analalava	Oct. 16–31	1	1	Bubonic.
Itasy	Oct. 16–Dec. 15	25	25	
Maevatanana	Oct. 16–31	10	10	
Moramanga	Oct. 16–Dec. 15	74	53	
Tamatave	Oct. 16–Nov. 30	14	1	
Tananarive	Oct. 16–Dec. 15			Cases, 429; deaths, 398.
Town—				
Tamatave	Nov. 16–30	2		
Tananarive	Oct. 16–Dec. 15	44	30	
Mauritius:				
Plaines Wilhems	Oct. 1–Nov. 30	3	3	
Port Louis	do	20	18	
Nigeria	Aug. 1–Oct. 31	865	775	
Peru	Nov. 1–Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1–31	47	10	
Departments—				
Ancash	Dec. 1–31	6	6	
Do	Jan. 1–31			Present.
Cajamarca	do	30	6	
Ica—				
Chincha	Nov. 1–30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Do	Jan 1–31	2		
Libertad	Dec. 1–31	2		
Do	Jan. 1–31	1		
Lima	Nov. 1–Dec. 31	42	14	
Do	Jan. 1–31	46	10	
Portugal:				
Lisbon	Nov. 23–26	3	2	In suburb of Balem.
Russia	May 1–June 30	44		
Do	July 1–Sept. 30	64		
Senegal	July 1–31	178	162	
Diourbel	Nov 29–30	12	1	
Tivaouane	Dec. 19–25	6	2	In interior.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Siam	Apr. 1-Dec. 18			Cases, 26; deaths, 21.
Do	Jan. 2-8			Cases, 30; deaths, 22.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Bousse	do	8		
Djenemana	do	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
De Aar district	Nov. 21-27	1		Native.
Craddock district	Jan. 2-8	2	1	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-22	3		
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926. Reported Dec. 17.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20			Cases, 698.
Algiers	Dec. 11-31	4		
Do	Jan. 1-10	1		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 5	48	22	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Feb. 26			Cases, 361.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Feb. 26	84		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Feb. 27	5		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Feb. 19	18		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Feb. 26	217		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Feb. 26	57	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Feb. 26	10		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-30	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 2-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Feb 10-25	11	7	
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-22	2		
Chosen	Aug. 1-Oct. 31	47	16	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Nov. 30	214		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-31	10	2	
French Settlements in India	Aug. 29-Dec. 4	108	108	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Oct. 31	57	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Feb. 5			Cases, 2,724.
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Feb. 19	15		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Feb. 19	421		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,009.
Do	Jan. 2-8			Cases, 4,270; deaths, 1,028.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-29	61	45	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-22	349	258	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Feb. 5	26	23	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Feb. 5	62	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-22	5	4	
Indo-China	July 1-31			Cases, 29; deaths 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Saigon	Dec. 26-Jan. 1	3		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Basra	Nov. 7-13	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Italy	Aug. 29–Nov. 13	16		
Genoa	Dec. 20–31	1		
Do	Jan. 1–10	2		
Jamaica	Nov. 26–Jan. 1	37		Reported as alastrim.
Do	Jan. 2–Feb. 5	45		
Japan	Oct. 24–Dec. 4	6		
Kobe	Nov. 14–20	1		
Do	Jan. 23–Feb. 5	2		
Yokohama	Nov. 27–Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Oct. 24–Dec. 25	11	1	
Do	Jan. 2–8	1	2	
Lithuania	Nov. 1–30	2		
Luxemburg	Nov. 1–Dec. 31	2		
Mexico	July 1–Sept. 30		413	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31–Feb. 6			Present.
Ciudad Juarez	Dec. 14–27		2	
Manzanillo	Mar. 5	6		
Mazatlan	Feb. 14–20		2	
Mexico City	Nov. 23–Dec. 25	6		Including municipalities in Federal district.
Do	Dec. 26–Feb. 19	4		Do.
Nuevo Leon State:				
Montemorelos	Feb. 24			Reported present.
Monterey	do			About 60 cases reported in one hospital; other cases stated to exist.
Parral	Jan. 31–Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6–12		1	
San Luis Potosi	Nov. 12–Dec. 18		3	
Do	Jan. 9–Feb. 26		15	
Tampico	Jan. 21–31	1		
Torreon	Nov. 28–Jan. 1		12	
Do	Jan. 2–Feb. 26		9	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1–Oct. 31	73	4	
Peru:				
Arequipa	Dec. 1–31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11–Dec. 25			Cases, 58; deaths, 1.
Portugal:				
Lisbon	Nov. 22–Jan. 1	43	4	
Do	Jan. 2–Feb. 5	10		
Rumania	Jan. 1–Sept. 30	7	1	
Russia	May 1–June 30	705		
Do	July 1–Sept. 30	884		
Senegal:				
Dakar	Jan. 9–15	1		
Siam	Apr.–Jan. 1			Cases, 711; deaths, 208.
Do	Jan. 2–22			Cases, 8; deaths, 7.
Bangkok	Oct. 31–Jan. 1	28	10	
Do	Jan. 2–22	8	7	
Sierra Leone:				
Nanowa	Dec. 1–15	1		Pendembu district.
Spain	July 1–Sept. 30		9	
Valencia	Feb. 8–14	1		
Straits Settlements:				
Singapore	Oct. 31–Jan. 1	12	2	
Tunisia	Oct. 1–Dec. 31	9		
Union of South Africa:				
Cape Province—				
Caledon district	Dec. 5–11			Outbreaks.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21–27			Do.
Natal—				
Durban district	Nov. 7–27	9		Including Durban municipality. Total from date of outbreak; cases, 62 deaths, 16

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Johannesburg	Nov. 14-20	1		
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Argentina:				
Rosario	Dec. 1-31		1	
Bulgaria	July 1-Nov. 30	33	5	
Chile:				
Concepcion	Jan. 23-29		1	
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	3	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Oct. 30	17	2	
Seoul	Nov. 1-30	1		
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Lithuania	Sept. 1-Nov. 30	24	3	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Feb. 19	53		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 20	6		
Do	Jan. 11-31	2		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	10		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 28-Jan. 3	1		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 30.
District—				
Bialystok	Oct. 31-Nov. 27	16	1	
Kielce	Nov. 28-Dec. 4	30	3	
Stanislawow	Oct. 31-Nov. 27	52	4	
Warsaw	do	45	5	
Rumania	Aug. 1-Nov. 30	255	11	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 18, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30
Cape Province	Oct. 1-31	47	7	
Do	Jan. 16-22			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 16-22			Outbreaks.
Transvaal	Oct. 1-31	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-31	43	3	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-30	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

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SPECIAL ARTICLES

Ship Fumigation Determined by Observed Rodent Infestation

Responsibility of Vessels in Supplying Safe Drinking Water

UNITED STATES
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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

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PUBLIC HEALTH REPORTS

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SHIP FUMIGATION DETERMINED BY OBSERVED RODENT INFESTATION

By C. V. Akin, *Surgeon*, and G. C. Sherrard, *Acting Assistant Surgeon, United States Public Health Service*

In the course of studies of various cyanogen fumigants undertaken at the New York quarantine station between February and June, 1926, it became apparent that many vessels were regularly or periodically fumigated, in accordance with the regulations, which did not yield rats. Careful investigation led to the conclusion that, in many instances at least, the fumigation was not at fault, as there appeared to be no rats on board.

The question naturally arose as to whether it would be possible to determine with satisfactory accuracy the degree of rat infestation of a vessel by inspection alone.

Preliminary to investigating this question the following hypotheses were assumed, and this report concerns the work carried on to determine the possibilities of the third assumption:

(1) For the purpose of plague control, vessels are fumigated only for the purpose of destroying rats and fleas.

(2) Vessels with no rats on board do not require fumigation to prevent the spread of plague.

(3) The presence of significant numbers of rats on board vessels can be determined by inspection.

In order to prove or disprove the third hypothesis, 100 vessels due for fumigation under the regulations were inspected immediately prior to fumigation. In view of the work previously done by an officer of the Public Health Service, tank steamers carrying liquid cargo in bulk were not included, as they have been made subject to special regulations on account of their usual freedom from rats.

Passenger and cargo vessels were taken without reference to their past rat record. A medical officer made a preliminary series of surveys of these vessels for the purpose of defining the scope and character of inspections to be made and to draw up an outline of inspection procedure. After a number of studies had been made to determine the methods of inspection, these methods were standardized and necessary inspection forms were drawn up. The inspector's report form devised and subsequently used and the medical officer's report form are reproduced herewith.

INSPECTOR'S REPORT TO MEDICAL OFFICER IN CHARGE OF FUMIGATION

NEW YORK QUARANTINE STATION

RAT INFESTATION REPORT

______ S. S. ________________________________ Date ______________________

Location ________________________________ Net tons ______________________

Type of vessel: Cargo—Passenger ________ Year built ________ Where built ______________________

Kind of cargo, present voyage ____

Customary cargo ____

Customary trade route ____

Compartments	Rat indications[1]	Extent of rat harborage[2]	Description of rat harborage[3]
Holds:			
No. 1			
No. 2			
No. 3			
No. 4			
No. 5			
No. 6			
No. 7			
Shelter deck space			
Bunker space			
Engineroom and shaft alley			
Forepeak and storeroom			
Afterpeak and storeroom			
Lifeboats			
Chart and wireless rooms			
Galley			
Pantry			
Provision storerooms			
Quarters (crews)			
Quarters (officers)			
Quarters (cabin passengers)			
Quarters (steerage)			

[1] None, old, or recent evidence of excreta, runs, or cutting.
[2] None, slight, moderate, or marked rat harborage.
[3] Describe harborage when present in marked amount.

Time taken for inspection ______________________ Estimated number of rats ______________

Conclusions: Fumigate: Fumigations not indicated:

______________________________,
Inspector.

BACK OF INSPECTOR'S REPORT

PAST FUMIGATION AND TRAPPING RECORD

From .... To ....

Fumigated .... times, ... rats recovered.

Average of .... rats per fumigation.

From .... To ....

Trapped .... Days................ Rats recovered................

SUBSEQUENT FUMIGATION AND TRAPPING RECORD

Fumigation: Date .... Rats recovered................................

Location. Holds Nos. 1 2 3 4 5 6 provision storeroom forepeak, poop, forecastle, living quarters, other places.

Trapping: Dates .... Rats recovered................................

Location: Holds Nos. 1 2 3 4 5 6 provision storeroom forepeak, poop, forecastle, living quarters, other places.

METHOD OF PROCEDURE IN THE STUDY

Following usual quarantine inspection, vessels requiring fumigation under the regulations were so reported to the fumigation division. As orders to fumigate were received in the fumigation division, the names and dock location of the vessels to be fumigated were handed to the inspector. A careful rat-infestation inspection of the vessel was then made, but the results of inspection were not disclosed to the fumigators.

Following fumigation, the results of the rat-infestation inspection and of the fumigation and the past fumigation rat record of the vessel were compared. It was soon evident that the inspection foretold, in a reasonably constant manner, the amount of rat infestation, and would indicate whether or not the vessel should be fumigated for the destruction of rodents.

In Table 1 the results of the observations made on 100 vessels are analyzed, showing the relation of rat evidence to fumigation results.

TABLE 1.—*Relation of rat evidence to fumigation results*

Rat evidence	None	Old	Fresh			Total
			Slight	Moderate	Marked	
Number of vessels	24	9	26	34	7	100
Rats recovered by fumigation	2	1	73	495	353	924
Average rats per vessel	0.08	0.11	2.8	14.5	50.4	

As indicated by the figures of the above table there is a striking relationship between the amount and freshness of rat evidence and the number of rats on a given vessel.

CHARACTER OF RAT SIGNS SOUGHT IN DETERMINING THE FUMIGATION STATUS OF VESSELS

1. *Rat droppings* (excreta) are the most constant and dependable evidence of actual rat habitation. The number of rats on board can not be accurately estimated, but by careful inspection one may easily differentiate between the vessel with no rats, few rats, or many rats.

The distribution of evidence is of greatest value in estimating the degree of rat infestation. Five piles of droppings in widely separated parts of a vessel may be considered as sufficient indication of five rats, whereas the same amount of evidence in one hold or storeroom might suggest only one rat.

2. *Rat runs*, when plainly and freshly marked indicate the presence of rats, but do not denote numbers. Here again distribution is of value. It is sometimes difficult to distinguish between fresh and old runs and such marks may be painted out or otherwise obscured by the ship's crew.

3. *Gnawed woodwork* should be sought for and when found is proof of the presence of rats. Old cuts are easily distinguished from new.

4. *Damage to cargo*, such as cut sacks of coffee or grain, is obvious evidence, and the extent of damage indicates the degree of infestation.

5. *Rat nests, dead rats, and occasionally live rats* are encountered when vessels are inspected. Search of the bilges and inaccessible parts of vessels will repay diligence and care.

TABLE 2.—*Comparison of fumigation results of 100 vessels which had been inspected to determine the degree of rat infestation upon which to base a fumigation recommendation*

Total number of vessels	100
Passenger vessels	23
Cargo vessels	77

Type of vessel	Fumigation indicated by inspection			Fumigation not indicated by inspection		
	Number of vessels	Rats recovered	Averge rats per vessel	Number of vessels	Rats recovered	Average rats per vessel
Passenger	12	375	31.2	11	15	1.36
Cargo	29	473	16.3	48	61	1.27
Total*	41	848	20.6	59	76	1.29

* NOTE: All vessels in above list were fumigated without regard to results of inspection.

The results recorded in Table 2 clearly indicate that the presence of a significant number of rats on a vessel can be determined with satisfactory accuracy by careful inspection.

In distinguishing between vessels requiring fumigation and those not requiring fumigation on the basis of inspection alone, the character and amount of rat evidence were the sole considerations. For the purposes of the study, evidence was classified as "none," "old," or "fresh." Fresh evidence was further classified as "slight," "moderate," or "marked." Vessels with no signs, old signs, or only slight fresh evidence were considered as not requiring fumigation. Evidence was considered "slight" when fresh signs indicated the presence of from 1 to 5 rats. On fumigation, 59 such vessels yielded 76 rats. Forty-one vessels showing moderate or marked amounts of fresh evidence yielded 848 rats after fumigation. Evidence was considered "moderate" when fresh signs indicated the presence of from 5 to 10 rats, and "marked" when the signs suggested the presence of more than 10 rats.

Approximately one-half of the vessels inspected did not show recent evidence of rats; and subsequent fumigation, while not to be considered as proof of the absence of rats, strengthens the contention that a considerable number of the vessels studied need not have been fumigated.

Subsequent to the completion of the study of 100 vessels, the system of inspection was put into routine use at the New York quarantine station. After a brief period of training, inspectors, who had long experience in ship surveys for rat proofing, were assigned to the inspection of vessels to determine the degree of rat infestation.

PROCEDURE IN PRACTICE

The method of procedure now followed is essentially that developed in the course of the study.

At the time vessels from foreign ports are boarded and inspected in quarantine, a fumigation order is issued in accordance with the requirements of the quarantine laws and regulations.

As soon as the fumigation division receives a copy of the order, the agents are communicated with and an inspection date is arranged after the complete discharge of cargo. Whether the vessel is fumigated or the period extended depends upon the findings of the inspector.

When vessels are to be fumigated, a transcript of the inspector's report showing the location and degree of rat infestation and the estimated number of rats is handed the medical officer in charge of the fumigation squad assigned to the vessel. Using this report as a guide, the yield of rats per fumigation has increased, as is shown by comparing these results with those of previous fumigations of the same vessels.

Table 3 lists the record of 200 inspections which resulted in the extension of the fumigation for 91 vessels, or 45.5 per cent of the vessels inspected.

TABLE 3.—*Results of the fumigation of 200 vessels in which treatment was based on the findings of inspection (none of these vessels are included in figures given in Tables 1 and 2.)*

Total number of vessels	200
Passenger vessels (26 per cent)	52
Cargo vessels (74 per cent)	148
Inspected and passed (45.5 per cent)	91
Inspected and fumigated (54.5 per cent)	109
Estimated number of rats (made before fumigation) (109 vessels)	1, 796
Average number of rats estimated per vessel	16. 47
Rats recovered by fumigation (109 vessels)	1, 813
Average number of rats per vessel fumigated	16. 63

CONCLUSIONS

The advantages of such a system of inspection are as follows:

(1) More efficient application of regulations regarding fumigation. When agents request extension of routine fumigation period, compliance can be based on the known absence of rats.

(2) More efficient fumigation of vessels. Knowledge of the whereabouts of rats and their approximate numbers stimulates fumigators to more diligent effort.

(3) Avoidance of expense and delay of shipping by avoiding unnecessary fumigation.

(4) Conservation of effort, equipment and material of quarantine station without relaxing essential precautions against dangerous vessels.

(5) Reduction in fumigating personnel through elimination of unnecessary fumigations.

(6) Definitely stimulates rat proofing of vessels and encourages trapping and other rat eradicative measures applied by steamship agencies which strive to obviate cost of fumigation and attendant delay.

RESPONSIBILITY OF INTERSTATE COMMON CARRIERS IN SUPPLYING SAFE DRINKING WATER TO PASSENGERS AND CREW

By Isador W. Mendelsohn, *Associate Sanitary Engineer, United States Public Health Service*

Outbreaks of typhoid fever and other water-borne diseases due to impure drinking water on vessels on the Great Lakes and other bodies of water in the United States have been noted by Lumsden (1), de Valin (2, 3), Gorman (4), Connolly (5), and others; but no reference is found in scientific literature to any court action following such disease outbreaks or to the penalties imposed upon the delinquent common carriers.

The responsibility of companies transporting passengers in interstate traffic for the safety and welfare of the passengers and crew is clearly defined. As Tobey states (6):

> A private corporation is an individual entity and is liable for its wrongs, civil and criminal, just as is an individual. * * * Railroads, being common carriers, are required to take every reasonable precaution to insure the safety of their passengers, including their freedom from the possibility of catching disease. * * * Industrial concerns must provide their employees with safe and healthful surroundings in which to work. If they do not do so and a workman's health is impaired, the employer is liable. * * * Workmen's compensation acts in practically all the States provide for compensation for accidents arising out of the course of employment. * * * Typhoid fever, due to drinking polluted water supplied by the employer, has been held in several States to be an accident within the meaning of the law. * * * Whether workmen's compensation acts apply or not, the common law rule does, and that is to the effect that the employer is liable if disease results from causes over which he has control.

The interstate quarantine regulations of the United States require that water furnished for drinking or culinary purposes by interstate common carriers to passengers or crew be from an approved source and be handled in a sanitary manner. In the case of vessels, if such water is taken from overboard, it must be treated in an approved manner. The present interstate quarantine regulations were promulgated by the Secretary of the Treasury on May 3, 1921, pursuant to the act of Congress approved February 15, 1893, entitled "An act granting additional quarantine powers and imposing additional duties upon the Marine Hospital Service," and an amendment to this act approved March 3, 1901, and other quarantine laws. The penalty for violation of these regulations is $500 or imprisonment for one year, or both.

A search made in law libraries and elsewhere for court decisions concerning outbreaks of water-borne disease due to polluted drinking water on vessels resulted in finding one case, regarding the steamship *South American*, which was decided definitely by the courts, and another which was settled out of court. Accounts of these cases, showing the responsibility of vessel companies and the financial losses involved because of the disease outbreaks, are given below.

OUTBREAK OF TYPHOID FEVER ON STEAMSHIP SOUTH AMERICAN (7)

The steamship *South American*, owned by the Chicago, Duluth & Georgian Bay Transit Co., proceeded on an excursion from Detroit to Houghton, Mich., in June, 1915. The vessel was provided with a pressure rapid sand filter and ultra-violet-ray sterilizer and, normally, only filtered and sterilized water was served to passengers. However, between 10.30 and 11 p. m. on June 6 the boat ran aground in Hay Lake (a broadened section of St. Marys River), about 12 miles below the Soo. The seacocks, through which water is supplied to the boat, were imbedded in the mud. The vessel was not released until between 4 and 5 a. m. of June 7. Meanwhile, the water in both ballast and fresh-water tanks had been exhausted for power purposes. When the boat was released, water was pumped directly from the river into the fresh-water system without being sterilized or even filtered, and without any attempt to remove the mud in the seacocks except by blowing out with steam. The fresh-water system supplied all stateroom faucets and the drinking fountains in the salon. The ship's officers recognized the river water taken aboard as unfit to drink and did not drink it. The crew were not allowed to drink it, and the faucet ordinarily available to them was wired up. The steward would not serve it on the table, and so no water was served at breakfast or luncheon on June 7. But neither the stateroom faucets nor the drinking fountains were sealed, nor were the passengers warned against drinking the water from them. The water, even though turbid, was drunk by many of the passengers, as no water was served at the table and no ice water was available.

The preponderance of evidence indicated that the water of St. Marys River at the point where the vessel took overboard water was unfit for human consumption. The reports of the International Joint Commission on the Pollution of Boundary Waters and of the Michigan State Board of Health were cited. In addition, it was shown that, in 1915, prior to the accident, eight cases of typhoid fever, one of which occurred on June 4, had been reported at Sault Ste. Marie, Mich.

Appellees, 11 in number, filed libels in rem for recovery of damages by reason of illnesses alleged to have been caused by tainted food and contaminated water asserted to have been served to libelants while passengers on the vessel at the time. Each of these passengers was ill on the vessel, and each on returning home developed a serious illness. The judge of the district court of the United States for the southern division of the eastern district of Michigan found that a comparatively small quantity of tainted duck and meat was negligently served to the passengers; but while expressing a suspicion that some of the illnesses on the boat may have been aggravated by eating the tainted food, the court was of the opinion that libelants had not sustained the burden of proving that such illnesses were caused thereby. It was, however, found that each of the libelants received from the contaminated water the disease germs which caused their illnesses after the return of the boat to Detroit. Nine of the libelants suffered from typhoid fever and the other two from an illness closely allied to typhoid. The district court held that the steamer was clearly negligent in not warning the passengers against drinking the impure lake water. There was an award of damages to each libelant.

The circuit court of appeals, sixth circuit, on June 30, 1919, affirmed the decrees for all except three libelants, holding that, during several hours at least, and through the steamer's negligence, contaminated water was provided for the passengers. The court held that "an award of $1,500 as actual compensation for pain and suffering is probably no more than would be given by either court or jury in a normal and individual case" and made this award to nine of the libelants. In addition, the court awarded damages for medical expenses, business losses, costs, etc., the total sum involved for all the libelants being over $38,000. The decision considers the illness of each libelant and the damages suffered in detail.

OUTBREAK OF TYPHOID FEVER ON STEAMSHIP (5) IN 1913 (8)

In 1913 an outbreak of typhoid fever occurred among the passengers and crew of an excursion vessel on the Great Lakes. An investigation of this epidemic was made by an officer of the United States Public Health Service. He reported that the vessel had taken on water from the lakes at a place where the water was likely to be contaminated. Aboard the steamer was a cook who might have been a typhoid carrier. Another investigation was made by a former official of a city health department, who rendered the opinion that

there was a close question as to whether the epidemic was due to the water taken on the steamer and served to the passengers for drinking purposes, or to the contact of the cook with the food which was served.

Forty-nine members of the excursion party claimed to have sustained injury by contracting typhoid fever, and after libeling the steamer in June, 1915, they filed claims for damages in the sum of $265,000. In addition to the libels in admiralty, six separate State court suits were brought by administrators of the estates of other persons who had died from illness alleged to have been contracted on the voyage in question.

Subsequently a number of other suits were brought, and upon motion by owners' attorneys, which motion was contested by the libelants, the Federal court consolidated the actions, holding that the cases should be tried as one. Limitation proceedings were then begun in an attempt to limit any recovery to the value of the vessel. The court, in accordance with usual practice, turned the vessel over to a trustee, in whose name it was kept insured during the pendency of the action. The court finally set May 1, 1917, as the date of sale of the steamer. In the meantime negotiations progressed, and the libelants' counsel finally offered to accept $110,000 in full settlement. The case was disposed of on this basis, and the steamer was sold.

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STATE HEALTH DEPARTMENT SUPERVISION IN THE CONTROL OF TUBERCULOSIS

The National Tuberculosis Association has recently issued a 79-page pamphlet comparing the tuberculosis work of the different State departments of health as of the year 1924. The data were obtained by Dr. Robert E. Plunkett, director of the division of tuberculosis of the New York State Department of Health, by means of a questionnaire sent to all State and Territorial departments of health. The pamphlet contains a summary of all the official tuberculosis work as carried out by all States except Nevada, and by the District of Columbia, Alaska, Hawaii, Panama Canal Zone, and the Philippine Islands. In the first section, comprising the largest part of the pamphlet, there is set forth a detailed summary of the tuberculosis work of each of the State or Territorial health departments; the second part consists of tables which condense and summarize the information obtained in the survey; and the third part presents the data relating to the reporting of tuberculosis in New York State, exclusive of New York City.

The questionnaire on which the information was secured contained the following queries, most of which had several subdivisions:

1. Does the State health department or State board of health have a bureau or division of tuberculosis?
2. Is there a state-wide law in your State making compulsory the reporting of cases of tuberculosis by physicians and institutions?
3. Does your State have a State sanatorium or sanatoria?
4. Does your State have a system of county tuberculosis hospitals?
5. Does your State have any city tuberculosis hospitals?
6. Does your State provide any State aid toward meeting the county or city expenses for construction or maintenance of such hospitals or both?
7. Does the State or do individual localities within the State establish and operate dispensaries for the diagnosis and treatment of tuberculosis?
8. Does your bureau or division of tuberculosis have any of the following duties? (List of 12 supervisory and other duties.)
9. What is the total appropriation for tuberculosis work in the State health department or State board of health for the current fiscal year, exclusive of appropriations for hospitals?

No attempt is made to evaluate any of the methods of procedure of the various State health departments, for the obvious reason that conditions vary, and activities apparently necessary in one State may not be so in others. Nor was any attempt made to obtain or include reports of any work carried on by unofficial or private agencies, although Doctor Plunkett recognizes the place and lauds the work of unofficial organizations.

With regard to the reporting of cases of tuberculosis, of the 41 States for which the information is given, the highest ratio of reported cases for each death registered was 3.3, and the lowest 0.004.

The tables give an excellent summary, by States, of the information obtained from the questionnaire which is presented in more detail under each State in the first part of the report.

Information regarding this report may be had by addressing the National Tuberculosis Association, 370 Seventh Avenue, New York City.

THE NOMENCLATURE FOR MAN, THE CHIMPANZEE, THE ORANG-UTAN, AND THE BARBARY APE

Apes and monkeys are popularly viewed as interesting animals, the antics of which are enjoyed by children and adults who visit zoological gardens or who listen to hand organs. Some monkeys have been considered sacred and some are used as food. In scientific studies monkeys have played an important rôle for many years in comparative anatomy and in the theory of evolution.

Within recent years it has been discovered that a number of apes and monkeys can contract diseases which attack man, and this fact has enabled investigators to have laboratory patients for close observation during their studies of some of the important infectious diseases of man.

As soon as a group of animals passes from the rôle of popular or of academic interest to a rôle in applied science it becomes increasingly more important to classify them more exactly, to study them more carefully, and to have for them unambiguous names which enable investigators in all countries to know exactly what animals other students are using as basis for their work.

In classifying certain diseases of apes and monkeys with reference to the diseases of man, the difficulty has developed that the technical names of some of the animals are so confused that it is often uncertain just which animal an author is dealing with. For instance, the Latin name *Simia* is used by different authors to designate three entirely distinct groups of Primates, namely, the chimpanzee, the orang-utan, and the Barbary ape. This confusion, if continued, may result in loss of human life because of errors of interpretation of statements by various authors.

Confronted with this possibility, the United States Public Health Service has prepared a special bulletin (Hygienic Laboratory Bulletin No. 145) in an endeavor to straighten out the existing confusion. The authors, Dr. C. W. Stiles and Mabelle B. Orleman, have traced the literature of several of the higher apes back to 1551 and have tabulated the technical names used by authors for the animals in

question. This study shows how human beings have sometimes been mistaken for apes and apes have sometimes been mistaken for human beings.

The publication, which is illustrated by 14 pictures of considerable historical value, is highly technical. The numerous Latin names are quoted, and their original source of publication and their later history are given.

The chief cause of the existing confusion, the authors consider, is that college students who study zoology are not properly taught how to write scientific language, and as a result they do not in their later scientific careers write this language correctly. A plan for teaching zoological nomenclature, which is the grammar of zoological language, is proposed, and the application of the International Rules to the names is discussed.

The bulletin is now in the hands of the printer and will be off the press at an early date.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Thermal Death Points of Pathogenic Bacteria in Milk. William H Park. *American Journal of Public Health*, vol. 17, No. 1, January, 1927, pp. 36–47. (Abstract by H. A. Kroeze.)

This article begins with a review of the results of experiments and conclusions of investigators on the thermal death points of pathogenic bacteria, especially tubercle bacilli, in milk under laboratory conditions. Laboratory experiments quite definitely fix these death points; but it is pointed out that additional heat must be applied to milk during commercial Pasteurization to allow for mechanical defects and so insure sufficient heating of every portion of the milk for the desired time. This is what is known as the margin of safety, and it varies in different machines according to the perfection of the construction and operation.

An interesting and important practical test conducted by Traum and Hart on naturally infected milk Pasteurized under commercial conditions is mentioned. This milk came from a herd of about 500 head of cattle, all of which were tuberculous, and which were under constant observation. The milk was allowed to be sold in Los Angeles after it had been Pasteurized. The conditions presented an ideal opportunity to study the effect of ordinary Pasteurization in a large modern city milk plant on tubercle bacilli in naturally infected milk.

The investigators concluded that the findings from this study indicate, first, that Pasteurization at 140° F. for 20 minutes kills tubercle bacilli in naturally infected milk and, second, that the Pasteurization of milk from nontuberculin tested cows by heating uniformly for 25 minutes at a temperature of 140° to 145° F., as

provided for in the new California State dairy law, will render such milk free from tuberculous infection.

Other experiments are mentioned wherein both bovine and human strains of tubercle bacilli were used and no appreciable difference was found in the thermal death point. A temperature of 140° F. for 20 minutes' exposure prevented milk infected with either type of bacilli from carrying infection to injected guinea pigs.

The author gives, in some detail, tests of commercial Pasteurization with defective and improved machines at Endicott made at the request of the Borden company. These experiments showed that satisfactory results were obtained with suitable machines with exposure to temperatures of 142° to 145° F. for 30 minutes, and that with improper apparatus some of the tubercle bacilli survived an apparent, but not a real, exposure of 30 minutes, not only at 142° but also 145° F.

In the opinion of the author, models of Pasteurizing plants should be submitted to sanitary engineers before they are built and should be inspected by trained inspectors in order to prevent the use of improperly and carelessly made machines; for without satisfactory equipment no practical regulation as to time and temperature of Pasteurization would be safe.

The Trend of Modern Methods in Water Purification. C. Arthur Brown, Engineer, American Steel & Wire Co. Paper presented at the Ninth Texas Water Works Short School, January 24–29, 1927, Dallas, Tex. (Abstract by W. H. Wendler.)

This paper reviews the progress in the art of water purification during the last 10 years, dividing the subject into seven parts—initial or low-lift pumping, preliminary sedimentation, chemical treatment, mixing sedimentation, filtration, and sterilization. The author again divides "chemical treatment" as follows: Measurement of flow to be treated, control of flow previous to, during, and following chemical treatment (including formation of coagulation and introduction of water into the settling basins), and nature of chemical treatment to be given. Attention is called to the fact that little progress has been made in two important parts of the work—sedimentation and the efficiency of the filters themselves. The paper states that little, if any, progress has been made in the designs of settling basins or the results secured by the use of such basins, some plants showing very low efficiency. Attention is also called to the fact that many plants are experiencing considerable difficulties with the filters. The trouble with such filtration is attributed to imperfect and faulty washing and this in turn to the design of filter bottoms as now constructed. It is stated that most of the trouble found in plants where settling basin efficiency is low and filtration efficiencies are unsatisfactory may be rightly attributed to the engineering and

not to the operation of such plants. A short history of all chemical processes employed in water purification is incorporated, with a brief statement as to their limitations. It is noted that there is a gradually increasing tightening of standards, that water purification methods have become more complex, and that the trend in this direction will probably result in higher standards of purification and more and more complicated chemical processes, creating new difficulties in design for the engineer and involving more skillful operation of the plants of the future.

Cross Connections (Present Status in Kansas Outlined in Kansas Municipalities). Anon. *Water Works*, Vol. 65, No. 12, December, 1926, pp. 577–578. (Abstract by E. A. Reinke.)

On June 1, 1925, the Kansas State Board of Health passed a regulation requiring the elimination of by-pass piping around purification plants and all cross connections between public and private water supplies, with certain exceptions, as follows: (1) When the private supply is submitted to regular inspection and analysis and water is found to be satisfactory and from a reasonably safe source; (2) for emergency protection, two valves with an open bleeder between, sealed by the water department, may be maintained under special permit signed by the chief engineer and the secretary of the State board of health.

A total of 138 cross connections have been listed and classed as follows:

Permits on satisfactory inspection and analysis	29
Double valve and bleeders	28
(Permits as above, 12.)	
Cross connection severed	35
Overhead discharge provided	2
Disposition pending	44

The Sanitary Organization of the City of Copenhagen, Denmark. Dr. I. P. Chrom, chief city medical officer of health, League of Nations Health Organization in Denmark, Dec. C. H./E. P. S./49 (issued by the Health Section), pp. 293–307. (Abstract by H. B. Hommon.)

The sanitary organization consists of the chief city medical officer of health and a health committee, consisting of physicians, veterinarians, and engineers, working under the direct supervision of the city medical officer. The sanitary regulations adopted in 1918 for the administration of the public health service are divided into sections, as follows:

Section I. This section deals with the members, staff, and procedure of the health committee.

Section II. The drainage system. The health committee interferes with the drainage system only when problems of public health are involved.

Section III. Public cleanliness, etc. The health committee exercises jurisdiction over the sweeping and watering of the streets, over courtyards, toilets, urinals, garbage disposal, etc., only when necessary to protect health.

Section IV. Latrines. The health committee determines what regulations should be enforced in regard to construction and operation of flush toilets, urinals, and privies.

Section V. Public nuisances. The health committee issues regulations to control establishments producing odors, noise, vibrations, or other conditions detrimental to public health.

Section VI. Articles of food. Comprehensive regulations have been adopted by the health committee in regard to the manufacture, handling, and sale of articles of food. They cover adulteration, examination of food handlers, cleanliness of buildings, equipment in stores, vehicles for transporting food, and the construction of wells.

Section VII. Dwellings. The health committee exercises jurisdiction over dwellings only in relation to matters pertaining to health.

Section VIII. Public houses and doss houses. For public houses (restaurants) the regulations of the health committee require for houses of one room a floor area of 40 square meters, and for houses of two rooms one floor must have at least 30 square meters. No room shall have a floor area less than 10 square meters, and the height of rooms must be at least 3 meters and no floor shall be more than 0.3 meter below street level. The aggregate window area must be one-sixth of the floor area, and one-third of the window area must be capable of being opened. Every restaurant must have attached a kitchen with floor area of not less than 10 square meters and a larder with floor of 1 square meter. Doss houses are lodgings in which beds are let for the night with two persons occupying one room. The rooms must have at least 8 cubic meters per bed. Double beds are not allowed.

Section IX. Schools, Orphanages, and Crèches. Special sanitary regulations prepared by the health committee cover these three classes of institutions.

STAFF OF THE HEALTH COMMITTEE

Divisional health officers.—There are four divisional health officers appointed for six years. The first, or chief, has supervision over all matters pertaining to children; the second, over sanitation of houses; the third, over food and water supplies; and the fourth, over venereal diseases, hospitals, and epidemiological studies.

Veterinary surgeons.—There are three veterinary surgeons. The first, or chief, issues all certificates and recommendations relating to veterinary questions and is in charge of milk inspection; the second inspects butchers' shops, and the third is assistant to the others.

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Engineers.—The health committee employs a chief engineer and a second engineer, who advise the committee on sanitary questions of a technical nature. The chief engineer is also the head of the housing inspection service.

A New Mosquito Poison. *Science*, vol. 65, No. 1672, January 14, 1927. p. x. (supplement).

"E. Roubaud, of the Pasteur Institute in Paris, has recently announced that a formaldehyde compound manufactured in France offers advantages over anything previously used in the fight against mosquitoes.

"M. Roubaud is a man of such high scientific standing that United States Government entomologists are going to make tests, it is announced in the Bureau of Entomology. The new compound may prove to be a weapon in the hands of Americans who are handling the question of mosquito control over very large salt marsh areas. Even if this should prove impractical, it appears that the new substance will be available for easy treatment of small ponds, fountains, and the like.

"The preparation is said to be nonpoisonous to warm-blooded animals and fish and to have no injurious effect upon aquatic plants. It is in the form of an extremely light dust, readily driven by the wind. Settling upon the surface of the water, it brings about the almost immediate death of the larvae of the malarial mosquitoes, which are top feeders, and with a subsequent slight agitation of the water sinks slowly in suspension, where it is eaten by the larvae of other mosquitoes.

"Roubaud recommends a mixture by weight of one part of the powder with 50 parts of very dry sand. This mixture has been tried successfully by him on fields in Alsace inundated by the Rhine. The cost of this method of treatment compares favorably with that of the arsenical dusts used in this country. It is said to amount to 50 francs to 10 hectares of water surface, or about 8 cents an acre at the present exchange rate."

How the Cotton Belt Railway Cut Malaria Rate Ninety-seven Per Cent in Nine Years. H. W. Van Hovenberg. *Railway Engineering and Maintenance*, vol. 22, No. 10, October, 1926, pp. 382–390. (Abstract by J. A. LePrince.)

The sanitary engineering department of this railroad has reduced the number of employees admitted to hospital for malaria from 100 per 1,000 in 1917 to 3 in 1925. In addition, it has improved the railway station sanitation rating over 50 per cent by developing the interest and cooperation of station agents. Also, there has been achieved a marked improvement of appearance of station grounds, inspection and certification of water supplies, supervision of cleaning of passenger equipment, and a wide variety of laboratory analysis

work done. This department consists of a directing sanitary engineer, his assistant, a chemist, an entomologist, a malaria technician, and sanitary inspectors.

The malaria program was planned to give relief to both employees and dependents and to stimulate mosquito eradication campaigns in communities served by the railroad. The following methods were employed: Eradication of mosquitoes by drainage and oiling; the proper screening of living quarters; quinine prophylaxis; and educational campaigns. This pioneering work of the Cotton Belt Railway has been a means of furthering this character of work in many cities and on other railroads.

Studies of the Malaria Problem in Porto Rico. Anon. *Porto Rico Health Review*, vol. 2, No. 5, November, 1926, pp. 22–28. (Abstract by L. D. Fricks.)

In this paper, the sixth reporting these studies, the influence of vegetation and small fish on mosquito production is discussed. The grasses grow rapidly in the ditches and larger water courses and are generally favorable to mosquito production, presenting one of the biggest problems in controlling mosquitoes in Porto Rico. Hornwort, algae, and lemna are also mentioned as variable factors in mosquito production on the island.

The common fishes found in small streams and ditches are discussed and their influence upon mosquito production is considered questionable.

Garbage Disposal by Incineration in Stamford, Conn. C. P. Shattuck. *American City*, Vol. 36, No. 2, February, 1927, pp. 182–184. (Abstract by D. W. Evans.)

A Decarie incinerator of 70 tons capacity serving two tax districts of the city was installed in 1924. The building is a three-story brick structure located on the outskirts of the city. Trucks and wagons reach the third floor by a ramp, and the combustible materials are charged into the incinerator, which is located on the second floor. The bottom floor is devoted to dump from the grates.

The sanitary code, which is enforced by the health department, requires the householder to separate combustible and noncombustible waste material. The noncombustible and waste from the incinerator are used as fill near the plant.

Collections are made by eight wagons, two 1-ton trucks, one 2-ton truck, and one 3½-ton truck. A crew of four men accompany the larger trucks; one man delivers to the curb, one loads, one returns the containers, and one drives the truck. The route is speedily covered. Operating records show loads rather than weights; in July, 725 loads were handled. Maximum day load was 43; minimum day load was 15.

Refuse Disposal in Connecticut. *Public Works*, Vol. 58, No. 1, January, 1927, pp. 14–15. (Abstract by Dana E. Kepner.)

This article is an abstract of an address given before the New England Health Institute on October 1, 1926, by Warren J. Scott, director, Bureau of Sanitary Engineering, State Department of Health, Hartford, Conn.

From a limited survey made of refuse disposal conditions in various Connecticut communities in 1923, the following data were secured: Of 31 cities and towns, 23 required garbage separated from ashes and rubbish, 7 did not require separation, and 1 permitted garbage and rubbish together with ashes and can separate. None required wrapping of the garbage.

In places where all refuse is dumped, some trouble has been experienced with fires and with rats and cockroaches. One city had a municipal hog farm and 15 others were using hog feeding, letting out the disposal, and generally the collection, to private contractors. One incinerator and one reduction plant were in use.

Yearly per capita costs for complete refuse collection and disposal service varied from $0.15 to $3. In general, both hog feeding and incineration were found successful, but dumping and reduction generally unsatisfactory.

Garbage Collection and Incineration in Sewickley. John C. Hiteshew, borough manager, Sewickley, Pa. *Public Works*, Vol. 58, No. 1, January, 1927, pp. 11–13. (Abstract by Dana E. Kepner.)

The Borough of Swickley is a residential suburb of Pittsburgh. It has a population of 5,000 and is located on the northern bank of the Ohio River. Garbage, drained and wrapped, is placed by the householder in covered, galvanized iron pails having a capacity of 11 gallons each and furnished by the borough. These are collected weekly, and taken to an incinerator where they are dumped and washed, and are then returned to replace those collected the next week. Rubbish is collected separately at monthly intervals. The incinerator, built in 1924, comprises two Morse-Boulger Destruction Co. units, of 15 tons daily capacity each, housed in a two-story brick building 27 by 37 feet. Coal is used in burning the garbage at the rate of 150 pounds per ton. The cost of the incinerator complete was $41,500. The entire cost of garbage service per capita was $1.75 in 1925. The cost for collection in 1925 was $3.28 per ton; and that for incineration $2.90 per ton.

Garbage Collection and Disposal, Lansing, Mich. Edward D. Rich. Proceedings American Society of Civil Engineers, October, 1926, pp. 1656–1659. (Abstract by L. D. Mars.)

This is a brief account of what Lansing has done with hog feeding. An analysis of the cost for eight months showed a profit of over $9,000.

Improving Sewage Sludge Digestion. Willem Rudolfs, chief, Department of Sewage Disposal, New Jersey Agricultural Experiment Station. *Public Works*, Vol. 58, No. 1, January, 1927, pp. 19–23. (Abstract by Dana E. Kepner.)

Studies to determine how to improve and better to control the digestion of sludge in septic, Imhoff, and separate sludge digestion tanks indicated considerable change in the pH concentration of the sludge during digestion. For optimum digestion the pH concentration should be controlled by either the regular addition of fresh sludge or the addition of lime, or by heating. The colorimetric method for pH determination was found most successful. Bromthymol-blue and phenol red were the only indicators needed for domestic sewage, as the optimum values varied only from 6.2 to 8.2.

The amounts of hydrated lime necessary to change the reaction of domestic sewage sludge to a pH value of 7.3 are shown in a chart. Methods used in sampling and testing the sludge and in applying the lime, are included, and suggestions are given for correcting the operation of foaming tanks.

An Epitome of Sewage Treatment. George A. Johnson, Consulting Engineer, New York. *American City*, Vol. 36, No. 2, February, 1927, pp. 176–178. (Abstract by D. W. Evans.)

The different methods of sewage treatment are briefly discussed and the need for more research on the mechanical treatment is emphasized in order to get away from long outfall sewers and costly treatment areas.

Clarification can be attained by screens, sedimentation, chemical precipitation, or combination. Treatment of the clarified liquors is accomplished by filtering, activation, direct oxidation, or oxidation with an unstable compound such as calcium hypochlorite.

Treatment of the sludge produced has been the biggest question and one of complexity. It has been carried on by filtering, centrifuging, and heat treatment to remove the water. It is with the sludge treatment that the greatest need is felt for better mechanical processes. Nuisances which have accompanied the biological treatment, such as odors and insects, will be eliminated by the mechanical processes.

Irrigation with Treated Sewage in Western Texas. H. N. Roberts and Don L. Jones. *Engineering News-Record*, Vol. 97, No. 26, December 23, 1926, pp. 1026–1028. (Abstract by Frank Raab.)

Lubbock, Tex., formerly discharged its sewage into Double Mountain Fork Canyon, but the canyon nearly dried up and the complaints resulting forced the city to take other measures. The city was advised to purchase a 100-acre tract of tillable land and discharge its sewage from the Imhoff tanks and the sprinkling filters upon it. The land was purchased, a reservoir which holds a two-day supply,

was constructed, the land was subleased, and 80 acres of it were planted into crops varying from corn and cotton to watermelons. The experiment proved successful. At the time of this inspection no odor or any bad feature was observed. The article also contains tables showing the total expenditure, including original cost as well as equipment and operation.

The Rate of Atmospheric Reaeration of Sewage-Polluted Streams. H. W. Streeter. *Public Health Reports*, Vol. 41, No. 7, February 12, 1926, pp. 247–262. (Abstract by E. L. Filby.)

Observations and theoretical discussion of reaeration of sewage polluted streams such as Ohio and Illinois Rivers. Deductions of former investigations checked. Rates of reaeration are controlled by temperature, turbulence, and oxygen saturation deficit of the stream. Theories of reaeration carefully applied offer a working hypothesis for more rational treatment of stream sanitation problems.

POPULATION OF HOSPITALS FOR THE INSANE

Data for July, 1926

Reports for the month of July, 1926, were received from 147 institions for the care and treatment of the insane.

There was an increase in the number of patients during the month of 0.60 per cent. The number in hospitals increased 0.33 per cent, and the number on parole increased 3.85 per cent.

First admissions constituted 77.1 per cent of the total admitted, readmissions, 15 per cent; and 7.9 per cent of the admissions were transfers or not accounted for.

Of the patients discharged, 23.3 per cent were recorded as recovered, 49.7 per cent as improved, 18.8 per cent as unimproved, 6.6 per cent as without psychosis, and 1.6 per cent were "otherwise discharged" or not accounted for.

There were 1,082 male patients per 1,000 females in the hospitals at the end of the month.

Seven and nine-tenths per cent of the patients were on parole or otherwise absent from the institutions on July 31.

The deaths for the month numbered 1,577, which gives an annual death rate of 88 per thousand patients under treatment.

Movement of patient population in 147 hospitals for the care of the insane during July, 1926

Number of institutions included:	
Public	125
Private	22
Total	147
Patients on books July 1, 1926:	
In hospitals	189, 753
On parole or otherwise absent but still on books	15, 669
Total	205, 422
Admitted during July:	
First admissions	4, 213
Readmissions	818
Admitted by transfer	424
Not accounted for	9
Total received during month	5, 464
Total on books during month	210, 886
Discharged during July:	
As recovered	525
As improved	1, 123
As unimproved	424
As without psychosis	150
Otherwise discharged	34
Not accounted for	2
Total discharged during July	2, 258
Transferred	404
Died	1, 577
Total discharged, transferred, and died during July	4, 239
Patients on books July 31, 1926:	
In hospitals	190, 374
On parole or otherwise absent but still on books	16, 273
Total	206, 647
Male patients	107, 392
Female patients	99, 255

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND INTERNATIONAL HYGIENE EXPOSITION AT WARSAW IN MAY AND JUNE

The Fourth International Congress of Military Medicine and Pharmacy will be held at Warsaw, Poland, from May 30 to June 4, 1927; and from May 30 to June 20 there will also be held in Warsaw an International Exposition of Hygiene and Technical Health Service Material.

The Congress of Military Medicine will have for consideration the following subjects, assigned by the General Assembly of the Paris Conference at its session of April 25, 1925:

1. Evacuation in war maneuvers.
2. Etiology and prophylaxis of grippe.
3. Sequellæ of traumatisms of the skull and their treatment.
4. The arseno-benzols—methods of analysis and chemical valuation.

The object of the hygiene exposition is to show the progress and new scientific equipment in the domain of general hygiene, as well as the development in the various industrial fields related to health and sanitation. The exposition will have the following sections:

1. Field health equipment—sanitary equipment, transportation, protection against gases, etc.
2. Hospitalization—diagnosis, therapy, infirmaries, first-aid kits, transportation of wounded, statistics, etc.
3. Sanitary installations.
4. Chemistry and pharmacy.
5. Medical and dental instruments and apparatus.
6. Hospital equipment—surgery, dressings, sick wards.
7. Veterinary medicine.

A jury will make awards to exhibitors in the nature of certificates of honor, and gold, silver, and bronze medals.

DEATHS DURING WEEK ENDED MARCH 19, 1927

Summary of information received by telegraph from industrial insurance companies for week ended March 19, 1927, and corresponding week of 1926. (From the Weekly Health Index, March 24, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 19, 1927	Corresponding week 1926
Policies in force	67, 030, 693	63, 694, 691
Number of death claims	13, 711	15, 314
Death claims per 1,000 policies in force, annual rate	10. 7	12. 5

Deaths from all causes in certain large cities of the United States during the week ended March 19, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 24, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 19, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Mar. 19, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 19, 1927	Corresponding week 1926	
Total (68 cities)	8,026	14.1	[3] 13.2	943	[3] 1,184	[4] 79
Akron	26			3	8	32
Albany [5]	42	18 3	24.5	5	4	104
Atlanta	100			12	13	
White	53			6	8	
Colored	47	(6)		6	5	
Baltimore [5]	302	19.2	17.8	31	28	96
White	220		15.3	21	19	81
Colored	82	(6)	32.4	10	9	156
Birmingham	73	17.7	18.8	9	14	
White	21		16.3	3	5	
Colored	52	(6)	22.6	6	9	
Boston	262	17.2	23.1	33	32	92
Bridgeport	27			2	10	37
Buffalo	189	17.9	16.2	29	23	122
Cambridge	34	14.3	21.4	3	4	53
Camden	44	17.3	21.1	6	11	103
Canton	32	14.8	15.6	11	3	261
Chicago [5]	734	12.3	17.7	75	149	65
Cincinnati	134	17.0	19.3	10	17	82
Cleveland	190	10.1	14.9	23	38	61
Columbus	72	12.9	15.7	5	7	47
Dallas	40	10.0	15.2	1	10	
White	29		13.9	1	8	
Colored	11	(6)	23.2	0	2	
Denver	86	15.5	15.0	8	7	
Des Moines	36	12.6	18.2	2	4	33
Detroit	336	13.1	20.6	58	113	92
Duluth	26	11.8	9.2	3	5	65
El Paso	33	15.1	15.8	4	4	
Erie	28			4	7	78
Fall River [5]	40	15.7	17.1	6	7	186
Flint	33	12.0	13.0	7	9	114
Fort Worth	40	12.7	11.2	2	2	
White	33		11.9	2	2	
Colored	7	(6)	5.5	0	0	
Grand Rapids	20	6.6	16.0	1	7	15
Houston	55			5	9	
White	40			5	4	
Colored	15	(6)		0	5	
Indianapolis	102	14.2	19.0	7	9	55
White	88		17.9	6	8	54
Colored	14	(6)	27.3	1	1	61
Jersey City	81	13.1	16.6	7	14	52
Kansas City, Kans	34	15.2	11.1	5	2	97
White	22		11.3	4	1	89
Colored	12	(6)	10.2	1	1	152
Kansas City, Mo	117	15.9	19.2	16	16	
Knoxville	17	8.7		3		
White	11			3		
Colored	6	(6)		0		
Los Angeles	270			18	20	52
Louisville	82	13.4	22.3	6	18	51
White	62		18.6	5	13	49
Colored	20	(6)	43.3	1	5	70
Lowell	26	12.3	18.4	4	11	77
Lynn	28	13.9	19.1	1	7	26
Memphis	88	25.6	19.1	6	6	
White	47		12.8	3	2	
Colored	41	(6)	30.6	3	4	
Milwaukee	125	12.4	12.0	13	26	61
Minneapolis	89	10.5	13.6	7	9	39
Nashville [5]	28	10.6	27.0	2	9	
White	15		22.3	1	4	
Colored	13	(6)	38.8	1	5	
New Bedford	28	12 2	16.6	1	6	17
New Haven	36	10.1	19.5	5	3	70

(Footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended March 19, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Mar. 19, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Mar. 19, 1927
	Total deaths	Death rate		Week ended Mar. 19, 1927	Corresponding week 1926	
New Orleans	188	23.1	20.0	16	8	
White	120		16.0	11	4	
Colored	68	(6)	31.6	5	4	
New York	1,621	14.2	20.5	258	261	107
Bronx Borough	186	10.5	15.1	23	32	73
Brooklyn Borough	535	12.3	19.6	104	107	108
Manhattan Borough	684	19.6	27.0	107	102	126
Queens Borough	165	10.6	13.1	16	15	68
Richmond Borough	51	18.1	23.0	8	5	149
Newark, N. J	116	13.0	17.3	13	19	64
Norfolk	26	7.6	14.1	1	9	20
White	9		8.0	1	3	33
Colored	17	(6)	24.8	0	6	0
Oakland	56	10.9	11.2	4	5	47
Oklahoma City	21			0	4	
Omaha	51	12.1	10.6	4	2	44
Paterson	43	15.6	23.3	6	4	106
Philadelphia	658	16.9	21.6	58	73	77
Pittsburgh	184	14.9	19.1	23	36	80
Portland, Oreg	54			2	6	21
Providence	70	13.0	14.8	9	7	76
Richmond	61	16.6	16.6	8	12	106
White	42		13.2	3	6	61
Colored	19	(6)	24.6	5	6	190
Rochester	80	12.9	23.2	6	8	50
St. Louis	232	14.4	15.9	16	14	
St. Paul	66	13.8	13.5	7	4	64
Salt Lake City [5]	44	16.9	9.4	5	4	76
San Antonio	56	13.8	15.3	8	7	
San Diego	33	15.0	17.5	2	1	43
San Francisco	133	12.0	11.0	9	4	56
Schenectady	24	13.5	15.1	0	0	0
Seattle	79			5	6	52
Somerville	25	12.8	12.0	3	1	108
Spokane	18	8.6	20.6	3	0	75
Springfield, Mass	34	12.1	20.1	5	7	77
Syracuse	36	9.5	25.6	2	8	26
Tacoma	31	15.1	12.8	0	5	0
Toledo	76	13.0	13.3	14	9	135
Trenton	33	12.6	22.2	4	11	70
Utica	37	18.7	20.8	4	4	91
Washington, D. C	167	16.1	14.6	15	9	87
White	104		13.8	10	6	84
Colored	63	(6)	17.2	5	3	92
Waterbury	26			5	2	118
Wilmington, Del	28	11.6	16.4	8	5	198
Worcester	53	14.2	15.9	4	6	48
Yonkers	29	12.7	18.0	3	4	68
Youngstown	38	11.7	8.2	10	3	140

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 63 cities.
[5] Deaths for week ended Friday, Mar. 18, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended March 26, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	25
Influenza	170
Lethargic encephalitis	2
Malaria	24
Measles	238
Mumps	32
Pellagra	6
Pneumonia	94
Poliomyelitis	1
Scarlet fever	13
Smallpox	51
Tetanus	5
Tuberculosis	185
Typhoid fever	23
Whooping cough	77

ARIZONA

	Cases
Chicken pox	3
Influenza	6
Measles	31
Pneumonia	1
Scarlet fever	9
Tuberculosis	7
Typhoid fever	1

ARKANSAS

	Cases
Chicken pox	33
Diphtheria	3
Influenza	102
Malaria	48
Measles	104
Mumps	38
Pellagra	12
Scarlet fever	22
Smallpox	9
Trachoma	1
Tuberculosis	10
Typhoid fever	5
Whooping cough	79

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Fort Bragg	1
Los Angeles	2
Marion County	1
Chicken pox	533
Diphtheria	128
Influenza	74
Leprosy:	
Los Angeles	1
Sacramento	1
Measles	3,490
Mumps	330
Poliomyelitis:	
Bakersfield	1
Santa Cruz	1
Scarlet fever	231
Smallpox	15
Tuberculosis	214
Typhoid fever	8
Whooping cough	206

COLORADO

	Cases
Chicken pox	48
Diphtheria	5
German measles	3
Impetigo contagiosa	2
Influenza	1
Measles	349
Mumps	19
Pneumonia	4
Scarlet fever	193
Smallpox	8
Tuberculosis	6
Whooping cough	3

CONNECTICUT

	Cases
Chicken pox	131
Diphtheria	20
German measles	11
Influenza	21
Measles	115
Mumps	45

NEW JERSEY

	Cases
Cerebrospinal meningitis	1
Chicken pox	346
Diphtheria	100
Influenza	20
Measles	68
Pneumonia	195
Scarlet fever	401
Trachoma	1
Typhoid fever	3
Whooping cough	223

NEW MEXICO

	Cases
Cerebrospinal meningitis	1
Chicken pox	26
Conjunctivitis	4
Diphtheria	23
German measles	74
Measles	76
Mumps	26
Pneumonia	7
Rabies	2
Scarlet fever	14
Smallpox	1
Tuberculosis	12
Whooping cough	13

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	307
Diphtheria	70
German measles	241
Lethargic encephalitis	2
Measles	721
Mumps	537
Pneumonia	295
Scarlet fever	322
Septic sore throat	3
Smallpox	13
Trachoma	1
Typhoid fever	12
Vincent's angina	14
Whooping cough	215

NORTH CAROLINA

	Cases
Chicken pox	151
Diphtheria	29
German measles	15
Measles	564
Scarlet fever	27
Smallpox	88
Typhoid fever	4
Whooping cough	1,108

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis:	
Marshall County	1
Pawnee County	1
Chicken pox	31
Diphtheria	14
Influenza	116
Measles	[2] 275

OKLAHOMA—continued

	Cases
Mumps	28
Pneumonia	62
Scarlet fever	60
Smallpox	31
Typhoid fever	14

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	16
Diphtheria	16
Influenza	97
Measles	180
Mumps	21
Pneumonia	[3] 6
Scarlet fever	43
Tuberculosis	10
Typhoid fever	1
Whooping cough	17

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Northumberland County	1
Chicken pox	765
Diphtheria	181
German measles	130
Impetigo contagiosa	8
Measles	691
Mumps	514
Ophthalmia neonatorum	4
Pneumonia	296
Poliomyelitis—Philadelphia	1
Rabies	1
Scabies	8
Scarlet fever	589
Tetanus	1
Tuberculosis	188
Typhoid fever	15
Whooping cough	257

RHODE ISLAND

	Cases
Chicken pox	10
Diphtheria	11
German measles	1
Mumps	3
Ophthalmia neonatorum	1
Pneumonia	5
Scarlet fever	20
Trachoma	1
Tuberculosis	3
Whooping cough	12

SOUTH CAROLINA

	Cases
Chicken pox	101
Diphtheria	19
Hookworm disease	34
Influenza	1,893
Malaria	104
Measles	76
Paratyphoid fever	1
Pellagra	59
Scarlet fever	2
Smallpox	16
Tuberculosis	50
Typhoid fever	7
Whooping cough	162

[2] Includes 96 cases in delayed report from Kay County.
[3] Deaths.

SOUTH DAKOTA

	Cases
Chicken pox	16
Diphtheria	4
Influenza	7
Measles	216
Mumps	6
Pneumonia	5
Scarlet fever	73
Smallpox	21
Whooping cough	11

TENNESSEE

Cerebrospinal meningitis:	
Lewis County	1
Nashville	3
Chicken pox	36
Diphtheria	11
Influenza	196
Malaria	6
Measles	131
Mumps	15
Pellagra	4
Pneumonia	75
Poliomyelitis—Hamilton County	1
Scarlet fever	21
Smallpox	16
Tetanus	1
Tuberculosis	34
Typhoid fever	15
Whooping cough	70

TEXAS

Chicken pox	50
Diphtheria	53
Influenza	25
Measles	211
Mumps	7
Pellagra	1
Pneumonia	8
Scarlet fever	26
Smallpox	29
Trachoma	1
Tuberculosis	28
Typhoid fever	22
Whooping cough	20

UTAH

Chicken pox	45
Diphtheria	4
German measles	23
Influenza	8
Measles	172
Mumps	10
Pneumonia	8
Scarlet fever	36
Smallpox	3
Whooping cough	12

VERMONT

Chicken pox	24
Diphtheria	1
Measles	17
Mumps	53
Scarlet fever	8
Whooping cough	11

VIRGINIA

	Cases
Smallpox	1

WASHINGTON

Cerebrospinal meningitis	4
Chicken pox	114
Diphtheria	25
German measles	427
Influenza	12
Measles	392
Mumps	134
Pneumonia	2
Scarlet fever	92
Smallpox	64
Tuberculosis	40
Typhoid fever	2
Whooping cough	51

WEST VIRGINIA

Chicken pox	69
Diphtheria	10
Influenza	81
Measles	197
Smallpox	25
Tuberculosis	16
Typhoid fever	10
Whooping cough	101

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	4
Chicken pox	98
Diphtheria	19
German measles	1
Influenza	4
Measles	78
Mumps	74
Pneumonia	23
Scarlet fever	52
Smallpox	1
Tuberculosis	9
Whooping cough	49
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	115
Diphtheria	19
German measles	15
Influenza	119
Lethargic encephalitis	1
Measles	657
Mumps	269
Ophthalmia neonatorum	1
Pneumonia	16
Poliomyelitis	1
Scarlet fever	136
Smallpox	6
Tuberculosis	32
Typhoid fever	2
Whooping cough	128

WYOMING

Chicken pox	3
German measles	13
Measles	50
Mumps	34
Scarlet fever	19
Smallpox	3
Whooping cough	2

Reports for Week Ended March 19, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	65
Diphtheria	28
Influenza	10
Measles	2
Pneumonia	29
Scarlet fever	29
Tuberculosis	35
Typhoid fever	1
Whooping cough	31

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	20
Diphtheria	1
German measles	1
Measles	319
Mumps	6
Pneumonia	10
Poliomyelitis	2
Scarlet fever	83
Smallpox	7
Tuberculosis	3
Typhoid fever	3
Whooping cough	7

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January, 1927										
California	19	702	172	2	6,683	2	13	1,164	163	51
New Hampshire	0	10	4				1	69	0	1
February, 1927										
Georgia	2	90	732	62	553	4	2	84	442	28
Illinois	11	532	205	1	8,469	1	5	1,584	118	61
Indiana	2	172	219		933		0	1,342	586	13
Iowa	3	101			2,545		1	339	38	0
Louisiana	2	89	82	21	506	6	1	53	21	32
Maine	1	9	36		735	1	1	105	0	10
Maryland	1	208	618		112		1	341	1	41
Minnesota	9	162	13		1,300		2	1,136	37	17
Missouri	5	229	170	3	1,033		3	693	79	27
New Hampshire	0	3	2				1	53	0	0
Ohio	14	692	99		604		7	2,063	206	23
Oklahoma [1]	6	85	939	46	706	7	2	201	166	49
Rhode Island	1	48	24		5		0	116	0	1
South Carolina	0	181	3,679	319	93	125	10	46	67	31
Tennessee	10	72	387	14	775	14	2	213	71	43
West Virginia	3	107	231		632		0	254	97	72
Wisconsin	19	171	353		3,099		3	929	58	10
Wyoming	0	7	2		938		0	103	1	1

[1] Exclusive of Tulsa and Oklahoma City.

January, 1927

	Cases
California:	
Chicken pox	2,122
Dysentery (amebic)	3
Dysentery (bacillary)	3
German meales	123
Jaundice (epidemic)	5
Leprosy	3
Lethargic encephalitis	5
Mumps	840
Paratyphoid fever	2
Rabies in animals	27
Tetanus	1
Trachoma	11
Trichinosis	8
Whooping cough	381

February, 1927

	Cases
Actinomycosis:	
Minnesota	1
Anthrax:	
Georgia	1
Oklahoma	1
Chicken pox:	
Georgia	266
Illinois	1,630
Indiana	630
Iowa	235
Louisiana	78
Maine	201
Maryland	630
Minnesota	656
Missouri	524
Ohio	1,859
Oklahoma	226
Rhode Island	126
South Carolina	427
Tennessee	390
West Virginia	391

Disease and State	Cases
Chicken pox—Continued.	
Wisconsin	1,107
Wyoming	43
Conjunctivitis:	
Georgia	4
Maine	5
Dengue:	
South Carolina	4
Dysentery:	
Georgia	3
Illinois	28
Louisiana	7
Maryland	3
Minnesota	2
Ohio	2
Oklahoma	16
German measles:	
Georgia	4
Illinois	108
Iowa	3
Maine	167
Maryland	9
Ohio	124
Rhode Island	4
Wisconsin	160
Wyoming	100
Hookworm disease:	
Georgia	9
Louisiana	12
Oklahoma	1
South Carolina	92
Impetigo contagiosa:	
Maryland	1
Lead poisoning:	
Illinois	28
Missouri	1
Ohio	20
Leprosy:	
Louisiana	1
Lethargic encephalitis:	
Illinois	11
Maryland	4
Minnesota	3
Ohio	5
Tennessee	1
West Virginia	2
Milk sickness:	
Illinois	1
Mumps:	
Georgia	107
Illinois	1,623
Indiana	8
Iowa	62
Louisiana	54
Maine	40
Maryland	116
Missouri	212
Ohio	431
Oklahoma	93
Rhode Island	54
South Carolina	3
Tennessee	33
Wisconsin	910
Wyoming	42
Ophthalmia neonatorum:	
Illinois	32
Maryland	4
Missouri	1
Ohio	92
Rhode Island	1

Disease and State	Cases
Paratyphoid fever:	
Georgia	1
Louisiana	1
Maine	1
Ohio	1
South Carolina	2
West Virginia	2
Wisconsin	2
Wyoming	1
Puerperal septicemia:	
Illinois	11
Rabies in animals:	
Maryland	9
Missouri	4
South Carolina	19
Rabies in man:	
Georgia	2
Scabies:	
Maryland	5
Oklahoma	3
Septic sore throat:	
Georgia	36
Illinois	11
Iowa	3
Maine	1
Maryland	22
Missouri	18
Ohio	62
Oklahoma	1
Rhode Island	2
Tetanus:	
Georgia	1
Illinois	3
Missouri	2
Oklahoma	1
Trachoma:	
Illinois	9
Minnesota	1
Ohio	5
Oklahoma	13
Wisconsin	1
Trichinosis:	
Minnesota	1
Typhus fever:	
Georgia	6
Vincent's angina:	
Maine	9
Maryland	6
Oklahoma	1
Whooping cough:	
Georgia	139
Illinois	896
Indiana	247
Iowa	52
Louisiana	87
Maine	168
Maryland	420
Minnesota	107
Missouri	190
Ohio	1,039
Oklahoma	64
Rhode Island	41
South Carolina	431
Tennessee	385
West Virginia	477
Wisconsin	586
Wyoming	2

Number of Cases of Certain Communicable Diseases Reported for the Month of January, 1927, by State Health Officers

	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	343	235	276	87	122	241	234	51	172
Arizona	57	14	68	3	36	0	120	1	7
Arkansas	190	58	45	76	44	20	[1] 35	41	156
California	2,122	702	6,683	840	1,164	163	662	51	381
Colorado [2]									
Connecticut	507	140	145	143	430	0	131	12	242
Delaware	12	18	6		167	0	[1] 17	0	20
District of Columbia	278	85	8		123	1	90	0	44
Florida	143	179	78	31	97	169	128	52	32
Georgia	162	175	303	75	94	385	63	38	160
Idaho	146	18	1,115	59	284	51	[1] 10	5	19
Illinois	2,117	568	6,041	1,016	1,567	172	1,518	52	779
Indiana	818	349	692	2	1,108	729	150	12	261
Iowa	252	139	1,179	57	310	45	36	1	48
Kansas	863	100	1,155	115	802	220	130	11	198
Kentucky [3]									
Louisiana	90	97	362	23	66	48	[1] 116	42	33
Maine	342	12	929	58	160	0	19	5	277
Maryland	713	267	116	83	358	1	204	38	463
Massachusetts	1,729	461	719	1,272	2,150	0	501	36	641
Michigan	1,234	496	526	325	1,435	175	647	26	564
Minnesota	1,155	182	1,026		1,219	19	257	22	111
Mississippi	935	97	1,306	521	104	129	294	60	1,361
Missouri	570	311	1,160	113	776	81	244	18	168
Montana	102	19	435	81	514	41	52	3	11
Nebraska	237	28	425	144	256	107	5	6	46
Nevada [4]									
New Hampshire		10			69			1	
New Jersey	1,520	517	201		1,311	0	470	14	821
New Mexico [2]									
New York	3,593	1,448	3,594	2,478	2,997	55	1,540	122	1,411
North Carolina	860	190	689		304	276		24	1,814
North Dakota	91	24	513	14	295	33	16	1	16
Ohio	2,803	789	382	386	1,946	222	775	44	914
Oklahoma [5]	155	154	378	34	236	119	87	43	48
Oregon	278	74	277	107	316	167	67	28	26
Pennsylvania	3,873	928	3,452	1,008	2,477	0	445	92	1,399
Rhode Island	64	61	7	23	100	0	33	5	49
South Carolina	515	110	284		70	69	189	53	313
South Dakota	146	21	572	30	359	34	4	9	61
Tennessee	397	151	768	26	341	46	136	132	436
Texas [2]									
Utah [3]									
Vermont	166	10	529	129	42	0	[1] 8	1	227
Virginia	1,044	250	1,032		351	229	[1] 110	47	1,562
Washington	560	123	1,157	265	572	252	149	28	84
West Virginia	393	113	381		242	29	61	59	387
Wisconsin	1,550	218	3,713	816	934	92	146	23	809
Wyoming	42	18	681	79	142	0		0	22

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of January, 1927

	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	1.58	1.09	1.27	0.40	0.56	1.11	1.08	0.24	0.79
Arizona	1.46	.36	1.74	.08	.92	.00	3.08	.03	.18
Arkansas	1.16	36	.28	.47	.27	.12	1.21	.25	.96
California	5.64	1.86	17.75	2.23	3.09	.43	1.76	.14	1.01
Colorado[2]									
Connecticut	3.65	1.01	1.04	1.03	3.09	.00	.94	.09	1.74
Delaware	.58	.87	.29		8.09	.00	1.82	.00	.97
District of Columbia	6 06	1.85	.17		2.68	.02	1.96	.00	.96
Florida	1.24	1.55	.67	.27	.84	1.46	1.11	.45	.28
Georgia	.60	.65	1.13	.28	.35	1.43	.23	.14	.59
Idaho	3.22	.40	24.58	1.30	6.26	1.12	1.22	.11	.42
Illinois	3.42	.92	9.75	1.64	2.53	.28	2.45	.08	1.26
Indiana	3.06	1.30	2.59	.01	4.14	2.73	.56	.04	.98
Iowa	1.22	.67	5.72	.28	1.51	.22	.17	.00	.23
Kansas	5.56	.64	7.44	.74	5.17	1.42	.84	.07	1.28
Kentucky[3]									
Louisiana	.55	.59	2.20	.14	.40	.29	1.71	.26	.20
Maine	5.08	.18	13.79	.86	2.38	.00	.28	.07	4.11
Maryland	5.26	1.97	.86	.61	2.64	.01	1.50	.28	3.41
Massachusetts	4.80	1.28	2.00	3.53	5.97	.00	1.39	.10	1.78
Michigan	3.24	1.30	1.38	.85	3.76	.46	1.70	.07	1.48
Minnesota	5.06	.80	4.50		5.34	.08	1.18	.10	.49
Mississippi	6.15	.64	8.59	3.43	.68	.85	1.93	.39	8.95
Missouri	1.91	1.04	3.89	.38	2.60	.27	.82	.06	.56
Montana	1.68	.31	7.17	1.34	8.48	.68	.86	.05	.18
Nebraska	2.00	.24	3.58	1.21	2.16	.90	.04	.05	.39
Nevada[4]									
New Hampshire		.26			1.79			.03	
New Jersey	4.77	1.62	.63		4.12	.00	1.48	.04	2.58
New Mexico[3]									
New York	3.70	1.49	3.71	2.55	3.09	.06	1.59	.13	1.45
North Carolina	3.50	.77	2.80		1.24	1.12		.10	7.37
North Dakota	1.67	.44	9.42	.26	5.42	.61	.29	.02	.29
Ohio	4.92	1.38	.67	.68	3.42	.39	1.36	.08	1.60
Oklahoma[5]	.86	.85	2.10	.19	1.31	.66	.48	.24	.27
Oregon	3.68	.98	3.66	1.42	4.18	2.21	.89	.37	.34
Pennsylvania	4.69	1.12	4.18	1.22	3.00	.00	.54	.11	1.69
Rhode Island	1.07	1.02	.12	.38	1.67	.00	.55	.08	.82
South Carolina	3.29	.70	1.81		.45	.44	1.21	.34	2.00
South Dakota	2.47	.36	9.68	.51	6.07	.58	.07	.15	1.03
Tennessee	1.88	.72	3.64	.12	1.62	.22	.64	.63	2.07
Texas[2]									
Utah[3]									
Vermont	5.55	.33	17.67	4.31	1.40	.00	1.27	.03	7.58
Virginia	4.83	1.16	4.77		1.62	1.06	1.51	.22	7.22
Washington	4.22	.93	8.72	2.00	4.31	1.90	1.12	.21	.63
West Virginia	2.73	.78	2.64		1.68	.20	.42	.41	2.69
Wisconsin	6.25	.88	14.98	3.29	3.77	.37	.59	.09	3.26
Wyoming	2.05	.88	33.27	3.86	6.94	.00		.00	1.07

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of February, 1927, to other State health departments by departments of health of certain States

Referred by—	Actinomycosis	Dysentery	Encephalitis	Scarlet fever	Smallpox	Trachoma	Tuberculosis	Typhoid fever
California							1	
Connecticut				1				
Illinois					7	1	6	1
Massachusetts								1
Minnesota	1	2	1	2			26	
New York				1				2
Rhode Island							1	

INFLUENZA IN THE UNITED STATES, FEBRUARY 13 TO MARCH 12, 1927

The following table gives a summary of the cases of influenza reported by State health officers during four weeks in February and March of the years 1925, 1926, and 1927. Similar tables for preceding weeks appear in the PUBLIC HEALTH REPORTS February 18, 1927, page 503, and February 25, 1927, page 571.

Influenza cases reported by State health officers for the seventh to eleventh weeks (inclusive) of 1925, 1926, and 1927

State	Week ended—											
	Feb. 21, 1925	Feb. 20, 1926	Feb. 19, 1927	Feb. 28, 1925	Feb. 27, 1926	Feb. 26, 1927	Mar. 7, 1925	Mar. 6, 1926	Mar. 5, 1927	Mar. 14, 1925	Mar. 13, 1926	Mar. 12, 1927
Alabama	1,353	848	61	866	1,735	76	897	1,956	82	619	1,922	133
Arizona		220			3	1		11	1	4	38	
Arkansas	359	214	74	406	437	149	399	557	51	522	284	93
California	146	291	55	105	383	79	120	136	101	146	63	86
Colorado		16	2	1	5	1	14	18		5	6	1
Connecticut	27	13	14	22	22	18	5	20	7	15	99	27
Delaware	(1)				35			15			34	
District of Columbia	3	30	24	1	58	7	1	8	21	2	1	18
Florida	29	38	7	14	37	17	23	175	10	10	64	68
Georgia	1,264	1,275	99	1,022	818	298	961	1,107	222	1,174	1,332	374
Idaho	(1)	5		(1)	8		(1)	2		(1)	8	
Illinois	35	41	59	36	71	29	57	123	44	90	521	63
Indiana	50	79	78	226	158	46	270	217	27	244	374	41
Kansas	18	26	36	24	182	11	41	102	7	101	58	13
Louisiana	95	152	7	73	1,317	15	213	519	17	76	537	24
Maine	4	14	6		2	10	13	6	8	98	8	15
Maryland	69	576	162	100	526	226	68	291	356	75	273	455
Massachusetts	49		14	61	14	18	65	31	23	57	65	19
Minnesota	2	4	3	2	2	3		1	1	3	3	5
Missouri	238	6	8	60	9	26	75	31		69	42	2
Montana		52			3	1		347			12	
Nebraska			1	4	23	14			27	1		1
New Jersey	43	16	41	58	44	34	42	202	36	42	243	42
New Mexico	12	86	2	41	69	2	76	72	2	5	24	3
North Dakota					8			27			117	
Oklahoma [2]	543	846	274	491	1,291	162	489	1,539	214	258	1,846	149
Oregon	1	281	460	16	224	478	4	251	270	31	199	210
Rhode Island	(1)	2	(1)	(1)	(1)	4	(1)	(1)		(1)	55	1
South Carolina	(1)	(1)	636	(1)	(1)	157	(1)	(1)	979	(1)	(1)	1,352
South Dakota			1			14			17			4
Tennessee	(1)	221	58	(1)	195	84	(1)	424	47	(1)	646	264
Texas	2,829	1,789	17	1,468	974	23	1,862	3,523	71	388	1,162	329
Utah	(1)	31	5	(1)	12	4	(1)	14	8	(1)	10	8
Vermont											9	
Washington			2			3			8		1	1
West Virginia			50		6	56			86			69
Wisconsin	37	37	98	50	58	80	79	103	46	51	115	76
Wyoming		8		1				38	1	2	44	

[1] No report.
[2] Exclusive of Oklahoma City and Tulsa.

DEATHS FROM INFLUENZA AND PNEUMONIA IN LARGE CITIES

The following table shows the deaths from influenza and pneumonia in 79 large cities of the United States from January 2 to March 19, 1927. The figures are from the Weekly Health News, issued by the Bureau of the Census, issue of March 24, 1927. A table showing the deaths during the period January 2 to February 12 by weeks was published in the PUBLIC HEALTH REPORTS February 25, 1927, pages 571–572.

Deaths from influenza and pneumonia in 79 large cities of the United States, January 2 to March 19, 1927

City	Influenza						Pneumonia					
	Jan. 2 to Feb. 12, inclusive	For week ended—					Jan 2 to Feb. 12, inclusive	For week ended—				
		February		March				February		March		
		19	26	5	12	19		19	26	5	12	19
Total	684	155	155	158	171	160	6,576	938	1,048	1,084	1,173	1,078
Akron	2	------	------	------	------	------	39	6	4	5	7	------
Albany	3	1	0	0	1	0	47	3	6	5	7	5
Atlanta	5	6	4	6	7	8	62	7	6	7	12	17
Baltimore	24	4	9	12	14	14	255	50	54	59	78	67
Birmingham	17	7	4	1	3	6	45	5	3	11	5	5
Boston	4	0	2	1	2	2	191	30	35	29	34	33
Bridgeport	8	1	2	0	0	0	30	3	4	5	3	5
Buffalo	------	3	0	1	2	1	117	16	17	17	15	29
Cambridge	------	0	------	------	------	0	27	4	6	6	4	8
Camden	2	0	2	1	4	1	17	5	8	7	5	13
Canton	3	0	1	1	2	0	20	2	1	8	0	4
Chicago	70	11	11	17	6	10	480	55	88	65	100	79
Cincinnati	8	5	0	------	------	------	94	13	14	12	8	10
Cleveland	14	1	0	2	0	4	129	25	31	36	20	24
Columbus	9	0	2	2	1	3	42	8	7	5	5	8
Dallas	15	1	0	1	0	0	26	9	5	5	5	6
Dayton	------	1	0	1	0	------	40	1	2	1	5	------
Denver	6	3	4	5	5	2	68	11	5	8	15	7
Des Moines	------	0	------	------	------	1	22	0	1	1	1	1
Detroit	29	3	6	7	7	5	205	48	33	40	42	41
Duluth	0	0	0	0	0	1	17	3	2	0	0	2
El Paso	12	2	2	4	4	1	19	1	4	5	3	2
Erie	9	------	------	------	1	------	21	7	5	2	5	7
Fall River	------	------	0	1	2	------	22	3	8	4	4	7
Flint	1	1	1	------	------	------	24	4	7	5	6	7
Fort Worth	1	2	0	0	3	1	26	8	4	4	6	6
Grand Rapids	4	1	0	0	3	0	21	2	3	1	3	0
Houston	1	0	1	0	2	0	44	7	7	6	7	10
Indianapolis	1	0	2	0	0	2	75	8	8	10	12	15
Jersey City	5	0	3	0	2	1	68	8	13	12	15	6
Kansas City, Kans	4	0	1	0	2	0	27	7	4	5	9	1
Kansas City, Mo	11	5	2	1	3	3	84	10	16	13	11	11
Knoxville	------	------	------	------	------	------	40	8	6	8	6	1
Los Angeles	4	1	4	4	2	2	157	37	23	19	27	15
Louisville	------	0	1	0	0	0	85	6	7	17	11	12
Lowell	------	0	0	0	0	0	18	3	3	6	5	3
Lynn	------	0	0	0	0	0	20	2	5	5	5	4
Memphis	8	1	4	3	7	------	39	12	3	10	11	------
Milwaukee	2	2	1	0	0	1	101	9	14	14	30	14
Minneapolis	2	3	1	6	1	3	70	8	7	9	10	9
Nashville	4	0	0	0	4	1	42	8	6	9	5	2
New Bedford	1	------	1	------	------	------	30	4	2	4	2	2
New Haven	------	0	1	0	0	0	54	3	10	14	9	5
New Orleans	40	4	5	5	7	4	114	22	16	18	14	19
New York	138	25	23	27	19	33	1,345	185	210	228	263	242
Newark, N. J	2	2	0	1	0	1	86	14	3	12	19	19
Norfolk	------	------	------	------	------	------	38	4	6	7	7	4
Oakland	1	2	------	------	1	1	43	8	4	2	1	2
Oklahoma City	1	1	2	------	------	------	35	4	6	3	4	3
Omaha	------	------	------	------	1	1	32	7	8	7	3	10
Paterson	2	0	0	0	0	1	36	3	4	2	5	7
Philadelphia	61	14	11	17	17	18	432	52	66	66	85	104
Pittsburgh	30	5	6	1	3	7	213	16	36	34	41	37
Portland, Oreg	7	4	5	4	1	0	65	14	20	7	6	5
Providence	1	1	0	1	1	4	40	7	6	8	12	8
Richmond	12	1	1	0	2	0	32	10	7	4	3	8
Rochester	2	1	0	1	1	0	41	7	6	7	6	8
St. Louis	3	2	0	1	2	1	126	13	12	18	17	17
St. Paul	5	1	0	1	1	0	44	7	4	9	2	8
Salt Lake City	1	0	1	1	0	0	37	4	5	4	2	4
San Antonio	------	------	------	------	------	------	46	6	6	8	7	------
San Diego	5	0	1	3	0	0	23	3	8	2	5	1
San Francisco	9	4	1	3	2	3	93	14	10	18	14	7
Schenectady	------	1	1	1	0	0	9	5	3	0	1	4
Seattle	15	5	6	5	------	1	29	3	5	11	3	4
Somerville	------	------	1	0	0	1	18	5	3	3	3	1
Spokane	11	6	4	3	2	0	24	5	4	3	2	------
Springfield, Mass	1	0	1	2	0	1	22	4	3	5	3	5
Syracuse	1	0	0	0	9	0	44	5	6	5	6	2

Deaths from influenza and pneumonia in 79 large cities of the United States, January 2 to March 19, 1927—Continued

City	Influenza						Pneumonia					
	Jan. 2 to Feb. 12, inclusive	For week ended—					Jan. 2 to Feb. 12, inclusive	For week ended—				
		February		March				February		March		
		19	26	5	12	19		19	26	5	12	19
Tacoma							20	6	4	3	5	
Toledo	8	4	3	2	1	0	59	5	6	7	10	3
Trenton	6	1	1	1	3	1	36	3	3	10	5	4
Utica	1	0	0	0	1	1	30	0	9	3	5	4
Washington, D. C	24	3	9	1	6	6	131	24	35	34	15	13
Waterbury	6	1	0	0	0		11	2	4	2	5	5
Wilmington, Del	1	2	0	0	0	0	36	5	7	0	4	2
Worcester							53	7	6	8	5	4
Yonkers	1		0	0	1	1	23	3	4	5	4	6
Youngstown		0	1	0		1	45	7	6	7	8	4

Blank spaces indicate that no report has been received.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,000,000. The estimated population of the 90 cities reporting deaths is more than 29,700,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 12, 1927, and March 13, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,281	1,709	
95 cities	644	1,073	911
Measles:			
40 States	20,397	15,522	
95 cities	9,492	4,526	
Poliomyelitis:			
41 States	15	10	
Scarlet fever:			
42 States	4,483	6,328	
95 cities	1,706	2,514	1,277
Smallpox:			
42 States	907	902	
95 cities	232	163	142
Typhoid fever:			
42 States	175	226	
95 cities	31	45	38
Deaths reported			
Influenza and pneumonia:			
90 cities	2,218	1,234	
Smallpox:			
90 cities	13	0	
Los Angeles	13	0	

City reports for week ended March 12, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	5	1	1	0	0	1	0	0
New Hampshire:									
Concord	22,546	0	0	1	0	0	9	0	3
Manchester	83,097	0	2	0	0	1	0	0	3
Vermont:									
Barre	10,008	0	0	0	0	0	8	8	0
Burlington	24,089	1	0	0	0	0	0	0	0
Massachusetts:									
Boston	779,620	86	58	41	12	2	52	169	34
Fall River	128,993	8	4	1	2	2	0	4	4
Springfield	142,065	7	3	2	0	0	0	6	3
Worcester	190,757	13	4	0	0	0	2	4	5
Rhode Island:									
Pawtucket	69,760	3	1	1	0	0	1	0	4
Providence	267,918	0	9	1	1	1	0	0	12
Connecticut:									
Bridgeport	[1]	2	8	5	2	0	10	8	2
Hartford	160,197	13	8	2	0	0	2	7	5
New Haven	178,927	17	2	0	0	0	0	3	9
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	25	12	12		2	7	26	15
New York	5,873,356	343	195	324	87	19	37	639	263
Rochester	316,786	7	9	4		1	7	0	6
Syracuse	182,003	16	6	0		0	9	11	6
New Jersey:									
Camden	128,642	10	5	24	4	4	0	0	5
Newark	452,513	67	17	6	17	1	11	46	24
Trenton	132,020	0	4	3	2	3	1	0	5
Pennsylvania:									
Philadelphia	1,979,364	116	75	67		17	34	127	85
Pittsburgh	631,563	63	20	26		3	53	2	41
Reading	112,707	16	3	2		0	3	39	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	10	9	4	0	3	2	29	8
Cleveland	936,485	153	26	45	4	0	4	41	20
Columbus	279,836	22	4	6	1	1	5	0	5
Toledo	287,380	48	6	4	2	1	17	8	10
Indiana:									
Fort Wayne	97,846	6	3	1	0	0	38	0	5
Indianapolis	358,819	79	7	11	0	0	23	6	13
South Bend	80,091	2	1	3	0	0	30	0	0
Terre Haute	71,071	3	0	0	0	0	32	0	0
Illinois:									
Chicago	2,995,239	101	87	98	34	6	1,311	184	100
Peoria	81,564	5	1	0	0	0	37	4	3
Springfield	63,923	5	0	1	4	4	105	0	1
Michigan:									
Detroit	1,245,824	125	58	53	8	7	22	128	42
Flint	130,316	25	5	2	0	0	7	1	6
Grand Rapids	153,698	6	3	0	0	3	0	2	3

[1] No estimate.

City reports for week ended March 12, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	7	2	0	0	0	111	42	0
Madison	46,385		0						
Milwaukee	509,192	130	16	20	0	0	42	87	30
Racine	67,707	25	2	3	0	0	13	27	0
Superior	39,671	0	0	0	0	0	8	0	3
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	8	1	0	0	0	35	0	0
Minneapolis	425,435	114	15	19	0	1	7	0	10
St. Paul	246,001	55	15	8	0	1	14	1	4
Iowa:									
Davenport	52,469	0	1	1	0		8	1	
Des Moines	41,441	1	3	0	0		25	2	1
Sioux City	76,411	11	1	2	0		55	4	
Waterloo	36,771	5	0	1	0		234	1	
Missouri:									
Kansas City	367,481		8						
St. Joseph	78,342	1	1	1	0	0	1	0	7
St. Louis	821,543	40	44	29	1	1	33	73	
North Dakota:									
Fargo	26,403		1						
Grand Forks	14,811	0	0	0	0		0	0	
South Dakota:									
Aberdeen	15,036	7	0	0	0		185	0	
Sioux Falls	30,127	0	1	1	0		4	0	
Nebraska:									
Lincoln	60,941	12	1	1	0	0	41	3	0
Omaha	211,768	7	4	3	1	1	95	44	8
Kansas:									
Topeka	55,411	14	1	0	0	1	31	0	1
Wichita	88,367	39	2	0	0	0	2	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	2	2	3	0	0	0	0	4
Maryland:									
Baltimore	796,296	160	26	34	313	14	9	8	78
Cumberland	33,741	0	2	1	3	1	2	0	2
Frederick	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	75	12	24	18	10	7	0	15
Virginia:									
Lynchburg	30,395	14	1	2	0	0	18	0	3
Norfolk	(1)	33	1	0	6	0	132	6	7
Richmond	186,403	6	3	2	4	2	112	1	2
Roanoke	58,208	8	1	1	0	2	2	0	5
West Virginia:									
Charleston	49,019	5	0	1	2	0	0	0	4
Wheeling	56,208	4	1	4	0	0	3	1	6
North Carolina:									
Raleigh	30,371	24	0	3	0	0	1	0	0
Wilmington	37,061	6	1	0	0	0	1	4	4
Winston-Salem	69,031	9	0	2	0	1	0	22	2
South Carolina:									
Charleston	73,125	6	0	0	36	0	15	0	2
Columbia	41,225	1	1	0	0		0	9	
Greenville	27,311	0	0	0	0	0	0	1	0
Georgia:									
Atlanta	(1)	6	2	6	181	7	67	5	12
Brunswick	16,809	0	0	0	0	0	2	2	6
Savannah	93,134	0	1	0	26	2	0	2	3
Florida:									
Miami	69,754	23	3	8	1	0	2	7	1
St. Petersburg	26,847		0			0			0
Tampa	94,743	6	1	3	0	0	63	0	2

[1] No estimate made.

City reports for week ended March 12, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	------	1	------	------	------	------	------	------
Louisville	305,935	19	6	3	0	0	1	3	11
Tennessee:									
Memphis	174,533	16	5	1	0	7	9	3	11
Nashville	136,220	6	1	1	0	4	0	0	5
Alabama:									
Birmingham	205,670	16	2	14	23	3	48	13	5
Mobile	65,955	------	0	------	------	------	------	------	------
Montgomery	46,481	8	1	1	0	0	4	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	0	2	0	------	85	8	1
Little Rock	74,216	4	0	0	0	0	0	0	2
Louisiana:									
New Orleans	414,493	2	10	16	10	7	129	0	14
Shreveport	57,857	5	0	0	0	0	1	17	0
Oklahoma:									
Oklahoma City	(1)	2	1	1	8	0	0	1	4
Texas:									
Dallas	194,450	10	5	8	0	0	70	1	5
Galveston	48,375	0	0	1	0	0	0	0	2
Houston	164,954	3	2	12	2	2	0	2	7
San Antonio	198,069	1	2	7	1	2	2	1	7
MOUNTAIN									
Montana:									
Billings	17,971	0	0	1	0	0	4	0	6
Great Falls	29,883	2	1	0	0	1	8	0	1
Helena	12,037	0	0	2	0	0	0	0	0
Missoula	12,668	3	0	0	0	0	0	19	0
Idaho:									
Boise	23,042	0	0	1	0	0	2	1	0
Colorado:									
Denver	280,911	------	9	------	------	5	------	------	15
Pueblo	43,787	17	1	1	0	0	23	0	1
New Mexico:									
Albuquerque	21,000	3	1	0	0	0	40	16	1
Arizona:									
Phoenix	38,669	0	0	0	0	0	1	0	3
Utah:									
Salt Lake City	130,948	16	2	4	5	0	64	1	2
Nevada:									
Reno	12,665	1	0	3	0	0	1	0	0
PACIFIC									
Washington:									
Seattle	(1)	36	5	4	0	------	24	74	------
Spokane	108,897	5	3	1	0	------	28	0	------
Tacoma	104,455	18	2	3	0	0	46	1	5
Oregon:									
Portland	282,383	9	6	11	3	1	75	4	6
California:									
Los Angeles	(1)	96	37	50	35	2	999	17	27
Sacramento	72,260	4	1	3	0	0	33	5	3
San Francisco	557,530	40	21	15	7	0	115	102	8

[1] No estimate made.

City reports for week ended March 12, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	4	2	0	0	0	0	0	1	0	8	28
New Hampshire:											
Concord	0	4	0	0	0	1	0	0	0	2	18
Manchester	3	3	0	0	0	0	0	0	0	0	15
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	1	2
Burlington	1	0	1	0	0	0	0	0	0	3	7
Massachusetts:											
Boston	69	168	0	0	0	25	1	2	0	11	207
Fall River	3	3	0	0	0	0	0	0	0	3	32
Springfield	7	4	0	0	0	2	0	1	0	6	38
Worcester	9	24	0	0	0	2	0	0	0	12	62
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	22
Providence	8	17	0	0	0	4	0	0	0	5	84
Connecticut:											
Bridgeport	11	13	0	0	0	3	0	0	0	0	38
Hartford	6	14	0	0	0	1	0	0	0	0	33
New Haven	11	5	0	0	0	4	0	1	1	0	51
MIDDLE ATLANTIC											
New York:											
Buffalo	21	31	0	0	0	9	1	0	0	2	143
New York	270	915	0	0	0	[1] 130	7	9	1	98	1,705
Rochester	16	18	0	0	0	3	0	0	0	4	91
Syracuse	15	11	0	0	0	1	1	2	1	1	51
New Jersey:											
Camden	4	6	0	0	0	4	0	0	0	1	46
Newark	26	50	0	0	0	7	1	0	0	39	140
Trenton	5	2	0	0	0	4	0	0	0	3	51
Pennsylvania:											
Philadelphia	80	130	0	0	0	34	3	2	1	20	617
Pittsburgh	30	19	0	0	0	7	0	3	0	1	194
Reading	4	3	0	0	0	0	0	0	0	1	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	30	2	2	0	9	0	1	1	6	142
Cleveland	46	55	0	0	0	9	1	0	0	21	186
Columbus	12	14	3	1	0	4	0	0	0	15	75
Toledo	14	13	4	0	0	7	1	1	1	48	77
Indiana:											
Fort Wayne	5	6	1	3	0	2	0	0	0	1	25
Indianapolis	11	30	13	26	0	4	0	0	0	37	83
South Bend	4	1	1	4	0	0	0	0	1	0	14
Terre Haute	3	2	1	0	0	0	0	0	1	2	18
Illinois:											
Chicago	125	145	3	2	0	36	2	1	1	72	759
Peoria	4	2	1	0	0	2	0	0	0	0	18
Springfield	2	3	0	0	0	1	0	0	0	0	28
Michigan:											
Detroit	94	142	2	0	0	22	1	0	1	58	333
Flint	6	30	1	13	0	1	0	0	0	1	28
Grand Rapids	10	15	1	0	0	1	0	0	0	5	44
Wisconsin:	3	6	1	0	0	0	0	0	0	5	6
Kenosha	3	6	1	0	0	0	0	0	0	5	6
Madison	3	------	0	------	------	------	0	------	------	------	------
Milwaukee	28	59	3	0	0	8	0	0	0	40	131
Racine	4	4	1	0	0	0	0	0	0	4	9
Superior	3	6	5	0	0	1	1	0	0	0	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	7	1	0	0	2	0	0	0	0	23
Minneapolis	45	67	9	0	0	0	1	0	0	0	80
St. Paul	33	44	7	1	0	6	1	0	0	18	65

[1] Pulmonary tuberculosis only.

City reports for week ended March 12, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—contd.											
Iowa:											
Davenport	2	3	2	0	------	------	0	0	------	0	------
Des Moines	6	15	2	0	------	3	0	0	------	0	27
Sioux City	2	5	1	3	------	------	0	0	------	9	------
Waterloo	2	1	1	0	------	------	0	0	------	1	------
Missouri:											
Kansas City	11	------	2	------	------	------	0	------	------	------	------
St. Joseph	2	11	0	0	0	0	1	0	0	1	31
St. Louis	31	40	5	0	0	0	1	2	0	35	238
North Dakota:											
Fargo	2	------	0	------	------	------	0	------	------	------	------
Grand Forks	0	8	0	0	------	------	0	0	------	0	------
South Dakota:											
Aberdeen	3	7	0	0	------	------	0	0	------	0	------
Sioux Falls	3	1	0	0	------	------	0	0	------	0	------
Nebraska:											
Lincoln	2	3	0	0	0	0	0	0	0	4	15
Omaha	4	20	10	2	0	2	0	0	0	0	54
Kansas:											
Topeka	2	5	1	7	0	3	0	0	0	15	13
Wichita	2	5	1	0	0	2	0	0	0	2	29
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	17	0	0	0	1	0	0	0	9	32
Maryland:											
Baltimore	39	29	0	0	0	26	2	1	1	49	314
Cumberland	0	0	0	0	0	0	0	0	1	0	14
Frederick	1	1	0	0	0	0	0	0	0	0	6
District of Columbia:											
Washington	28	14	1	0	0	11	1	0	0	10	178
Virginia:											
Lynchburg	0	2	0	0	0	1	0	0	0	1	10
Norfolk	2	10	0	0	0	4	0	0	0	16	------
Richmond	3	3	0	0	0	5	0	0	0	5	58
Roanoke	0	1	1	1	0	1	0	0	0	0	30
West Virginia:											
Charleston	1	3	1	1	0	2	0	0	1	3	------
Wheeling	2	3	0	0	0	1	0	0	0	3	19
North Carolina:											
Raleigh	0	7	0	0	0	1	0	0	0	49	6
Wilmington	0	2	1	0	0	0	0	0	0	5	13
Winston-Salem	1	1	4	0	0	2	0	1	0	56	17
South Carolina:											
Charleston	0	0	0	0	0	1	0	2	0	0	33
Columbia	0	2	0	2	------	------	0	0	------	15	------
Greenville	0	1	1	1	0	1	0	0	0	0	8
Georgia:											
Atlanta	4	7	3	22	0	5	1	1	0	16	91
Brunswick	0	1	1	0	0	1	0	0	0	0	6
Savannah	1	0	0	3	0	1	0	0	0	1	31
Florida:											
Miami	2	1	------	1	0	0	1	1	0	5	29
St. Petersburg	0	------	0	------	0	0	0	------	0	------	19
Tampa	0	3	0	0	0	0	1	1	0	4	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	------	0	------	------	------	0	------	------	------	------
Louisville	5	17	1	2	0	2	0	1	0	60	78
Tennessee:											
Memphis	4	26	2	10	0	7	0	0	0	13	69
Nashville	3	5	2	0	0	6	0	1	0	4	54
Alabama:											
Birmingham	2	1	9	3	0	5	1	3	0	12	67
Mobile	0	------	2	------	------	------	0	------	------	------	------
Montgomery	0	2	0	1	0	0	0	1	0	6	23

City reports for week ended March 12, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	1	1			0	0		18	6
Little Rock	1	3	0	0	0	2	0	0	0	0	
Louisiana:											
New Orleans	6	8	2	0	0	13	2	2	0	6	159
Shreveport	0	0	1	1	0	2	0	0	0	3	18
Oklahoma:											
Oklahoma City	2	0	3	0	0	1	0	0	0	0	25
Texas:											
Dallas	2	10	6	11	0	2	0	1	1	2	37
Galveston	0	0	1	0	0	2	0	0	0	0	13
Houston	1	3	2	4	0	2	0	1	0	0	45
San Antonio	1	5	0	0	0	6	0	0	0	0	61
MOUNTAIN											
Montana:											
Billings	1	3	0	0	0	1	0	0	0	0	4
Great Falls	1	6	1	0	0	1	0	0	0	0	7
Helena	0	0	0	0	0	0	0	0	0	0	0
Missoula	1	8	0	0	0	0	0	0	0	0	3
Idaho:											
Boise	0	0	1	0	0	0	0	0	0	1	
Colorado:											
Denver	14		2		0	8	0		0		104
Pueblo	1	7	0	0	0	2	1	0	0	0	14
New Mexico:											
Albuquerque	1	0	0	0	0	4	0	0	0	0	16
Arizona:											
Phoenix	0	3	0	0	0	15	0	0	0	0	35
Utah:											
Salt Lake City	3	8	1	0	0	0	0	0	0	9	19
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	10	11	4	1			1	1		24	
Spokane	5	21	4	14			0	0		7	
Tacoma	3	8	3	20	0	0	1	0	0	4	34
Oregon:											
Portland	6	12	9	2	0	3	0	1	0	4	65
California:											
Los Angeles	25	36	7	0	0	35	2	0	1	19	276
Sacramento	2	4	1	1	0	0	1	1	0	0	29
San Francisco	14	29	6	0	0	13	1	2	0	15	147

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	3	1	0	0	0	0	0
Worcester	0	0	0	0	0	0	0	1	0
Rhode Island:									
Providence	1	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York	4	4	5	2	0	0	1	1	1
New Jersey:									
Newark [1]	3	0	0	0	0	0	0	0	0

[1] Dengue: 1 case at Newark, N. J.

City reports for week ended March 12, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC—continued									
Pennsylvania:									
Philadelphia	0	0	1	0	0	0	0	0	0
Pittsburgh	0	0	0	0	0	0	0	0	1
Reading	1	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Cleveland	1	0	0	1	0	0	0	0	0
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	3	1	3	0	0	0	1	0	0
Michigan:									
Detroit	0	1	0	0	0	0	0	1	0
Wisconsin:									
Milwaukee	5	3	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	1	0	0	0	0	0	0	0
Minneapolis	0	1	0	0	0	0	0	0	0
St. Paul	0	0	1	0	0	0	0	0	0
Missouri:									
St. Louis	1	0	0	0	0	0	1	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	0	1	0	0	0	0	0
Virginia:									
Richmond	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	3	0	1	0	0	0	0
Georgia:									
Savannah [1]	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	0	0	0	0	0	1	0
Tennessee:									
Nashville	0	0	0	0	1	1	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans	1	0	0	0	1	1	0	1	1
Texas:									
Dallas	0	0	0	0	1	0	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Great Falls	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City	2	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1		0		0		0	0	
Spokane	2		0		0		0	0	
Oregon:									
Portland	0	1	0	0	0	0	0	0	0
California:									
Los Angeles	1	1	0	0	0	0	1	0	0
Sacramento	0	0	1	1	0	0	0	0	0

[1] Typhus fever: 1 case at Savannah, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended March 12, 1927, compared with those for a like period ended March 13, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, February 6 to March 12, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
101 cities	[2] 136	178	137	204	134	179	[3] 124	182	[2] 114	[4] 186
New England	123	174	116	132	101	149	94	163	78	128
Middle Atlantic	141	188	132	277	119	200	111	224	113	231
East North Central	[2] 132	179	134	169	141	198	123	177	[2] 107	[2] 166
West North Central	171	155	206	165	246	109	[3] 241	115	216	[5] 148
South Atlantic	134	223	104	192	73	192	108	196	86	156
East South Central	47	61	57	87	52	117	47	82	26	[6] 116
West South Central	116	151	90	172	116	197	103	151	103	193
Mountain	173	153	219	162	210	72	73	234	109	[7] 215
Pacific	139	168	204	188	214	152	188	134	147	199

MEASLES CASE RATES

	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
101 cities	[2] 1,719	642	1,995	784	2,066	843	[3] 1,884	858	[2] 1,686	[4] 784
New England	2,342	339	2,703	181	2,184	228	2,441	172	1,964	197
Middle Atlantic	1,514	45	1,917	69	2,044	75	1,843	68	1,716	80
East North Central	[2] 2,637	738	2,933	899	3,084	930	2,695	1,078	[2] 2,135	[2] 1,104
West North Central	551	685	676	566	901	963	[3] 842	955	1,603	[5] 1,193
South Atlantic	3,086	361	3,248	795	3,269	654	2,675	797	2,248	786
East South Central	729	453	957	469	1,231	464	1,319	540	1,407	[6] 360
West South Central	13	457	9	570	9	600	17	730	39	1,204
Mountain	109	7,866	137	9,691	82	10,653	210	8,154	337	[7] 1,828
Pacific	166	2,225	201	2,780	161	2,872	276	3,037	324	3,259

SCARLET FEVER CASE RATES

	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
101 cities	[2] 298	392	309	439	285	424	[3] 289	419	[2] 303	[4] 436
New England	361	536	361	469	354	541	347	423	333	590
Middle Atlantic	197	424	208	582	187	532	185	533	192	585
East North Central	[2] 359	327	372	323	340	365	346	398	[2] 371	[2] 364
West North Central	782	500	782	542	706	447	[3] 807	445	903	[5] 482
South Atlantic	169	259	149	250	199	219	162	181	149	194
East South Central	114	224	243	245	171	183	186	219	140	[6] 296
West South Central	107	75	107	67	112	117	90	67	112	122
Mountain	219	1,250	237	1,250	100	1,196	337	1,079	219	[7] 573
Pacific	308	390	330	340	311	314	311	330	249	285

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Kansas City, Mo., not included.
[4] Madison, Wis., Kansas City, Mo., Fargo, N. Dak., Covington, Ky., Mobile, Ala., and Denver, Colo., not included.
[5] Kansas City, Mo., and Fargo, N. Dak., not included.
[6] Covington, Ky., and Mobile, Ala., not included.
[7] Denver, Colo., not included.

Summary of weekly reports from cities, February 6 to March 12, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
101 cities	[2] 53	26	41	33	41	25	[3] 50	22	[2] 40	[4] 28
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	1	0	0	0	0	0	0	0	0	0
East North Central	[2] 23	15	33	28	18	15	23	21	[2] 19	[2] 34
West North Central	32	71	65	81	79	64	61	54	67	[5] 31
South Atlantic	80	63	50	60	65	45	99	53	48	54
East South Central	52	82	103	132	52	71	67	122	67	[6] 93
West South Central	112	67	142	63	133	50	193	50	142	71
Mountain	73	18	36	27	46	0	36	0	18	[7] 0
Pacific	458	76	193	94	244	105	300	13	260	94

TYPHOID FEVER CASE RATES

	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
101 cities	[2] 6	7	7	9	5	8	[3] 10	9	[2] 8	[4] 8
New England	5	5	7	2	5	9	12	2	5	12
Middle Atlantic	6	5	4	10	2	1	4	5	7	8
East North Central	[2] 4	2	5	4	1	6	5	6	[2] 4	[2] 1
West North Central	4	6	6	10	2	8	[3] 0	10	4	[5] 5
South Atlantic	15	18	4	24	11	29	6	24	7	11
East South Central	10	10	5	31	10	25	10	41	5	[6] 35
West South Central	0	13	21	8	30	4	39	8	4	17
Mountain	0	0	18	0	18	18	146	9	146	[7] 0
Pacific	13	18	16	3	8	8	16	8	0	10

INFLUENZA DEATH RATES

	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
95 cities	[2] 33	24	50	23	46	22	[3] 51	25	[2] 71	[8] 27
New England	19	2	2	9	19	12	12	9	24	12
Middle Atlantic	15	28	27	25	39	22	68	24	105	25
East North Central	[2] 11	22	11	19	14	17	14	23	[2] 32	[2] 16
West North Central	4	15	19	23	23	10	[3] 5	17	36	[5] 12
South Atlantic	64	24	138	31	96	42	47	48	78	72
East South Central	62	36	160	41	134	41	259	20	197	[6] 81
West South Central	282	39	278	39	212	26	124	39	97	47
Mountain	128	72	109	27	100	54	109	54	146	54
Pacific	35	21	95	17	35	17	32	17	21	7

PNEUMONIA DEATH RATES

	Feb. 13, 1926	Feb. 12, 1927	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927
95 cities	[2] 212	148	259	146	259	164	[3] 269	172	[2] 326	[8] 189
New England	156	165	175	102	165	183	186	202	217	188
Middle Atlantic	212	171	290	149	317	177	358	193	461	223
East North Central	[2] 161	128	181	120	179	146	206	134	[2] 289	[2] 159
West North Central	78	96	127	91	108	91	[3] 97	104	148	[5] 70
South Atlantic	408	171	490	239	454	257	342	234	303	278
East South Central	222	112	295	168	300	117	310	260	388	[6] 186
West South Central	516	146	516	207	353	164	362	185	238	159
Mountain	328	144	173	189	410	135	237	126	301	171
Pacific	110	114	173	176	141	131	117	121	92	148

[2] Madison, Wis., not included.
[3] Kansas City, Mo., not included.
[4] Madison, Wis., Kansas City, Mo., Fargo, N. Dak., Covington, Ky., Mobile, Ala., and Denver, Colo., not included.
[5] Kansas City, Mo., and Fargo, N. Dak., not included.
[6] Covington, Ky., and Mobile, Ala., not included.
[7] Denver, Colo., not included.
[8] Madison, Wis., Kansas City, Mo., Fargo, N. Dak., Covington, Ky., and Mobile, Ala., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926, and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended March 5, 1927.—The following report for the week ended March 5, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon. Colombo	3	2	0	0	0	0
British India:						
Karachi	----	0	----	0	1	0
Bombay	----	4	----	0	71	37
Calcutta	----	0	----	35	248	170
Rangoon	----	5	----	4	43	7
Madras	----	0	----	1	32	----
Negapatam	----	0	----	0	1	1
Vizagapatam	----	0	----	0	1	1
Dutch East Indies:						
Surabaya	2	2	0	0	0	0
Makassar	1	1	0	0	0	0
Siam. Bangkok	1	1	13	11	10	3
French Indo-China:						
Saigon	1	0	0	0	0	0
China: Shanghai	0	0	0	0	----	2
Hongkong	0	0	0	0	11	11
Manchuria: Mukden	0	0	0	0	0	1
Kwantung: Dairen	0	0	0	0	2	0
Madagascar: Tamatave	1	0	0	0	0	0
Kenya: Mombasa	2	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Padang, Palembang, Tarakan, Balikpapan.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Turane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow, Changchun.

Kwantung.—Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnavon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—St Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga.

Reports had not been received in time for publication from:

Dutch East Indies.—Samarinda.
U. S. S. R.—Vladivostok.

Movement of infected ships:

Tamatave.—The S. S. *Leconte-de-l'Isle* arrived on February 23 from St. Denis infected with plague.

Capetown.—The S. S. *Bendalla* arrived from London on February 25 with 50 influenza cases on board. Her next port of call is Fremantle.

Hongkong.—The S. S. *Kwai-Sang* arrived from Amoy on March 9 infected with smallpox.

INFLUENZA IN FOREIGN COUNTRIES

A telegram from the health section of the secretariat of the League of Nations received March 25, 1927, states that influenza continued to decrease except in Yugoslavia, where 467 deaths from influenza occurred during the first week of March. In 105 great towns of England there were 342 deaths from influenza during the week ended March 12. In the Union of Socialist Soviet Republics a mild outbreak of the disease reached its maximum about the last of February.

CANADA

Communicable diseases—Week ended March 12, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended March 12, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal meningitis			2	1	2	2		7
Influenza	41			3	1			45
Lethargic encephalitis					1			1
Smallpox				12	1	3	22	38
Typhoid fever			141	6				147

Communicable diseases—Ontario—February, 1927.—During the month of February, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	February, 1927		February, 1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	5	4	3	2
Chicken pox	641		785	
Diphtheria	341	18	201	18
German measles	607		511	
Gonorrhea	110		190	
Influenza	74	15		31
Lethargic encephalitis	1	1	2	1
Measles	1,899		1,988	
Mumps	198		588	
Pneumonia		195		227
Scarlet fever	745	8	820	4
Septic sore throat			2	
Smallpox	104		87	
Syphilis	114		162	
Tuberculosis	135	49	163	79
Typhoid fever	49	1	26	
Whooping cough	369		420	2

Smallpox.—Smallpox was reported present in the Province of Ontario during the month of February, 1927, at 25 localities, the greatest number of cases, viz, 22, being reported at Toronto. Seven localities reported one case each.

Epidemic typhoid fever—Montreal.—During the week ended March 12, 1927, 203 cases of typhoid fever with 4 deaths were reported at Montreal, Canada, as compared with 9 cases with 1 death reported for the week ended March 5, 1927. Later information states that the outbreak began March 4. From that date to March 25, 1,093 cases of typhoid fever were reported, the greatest number in any one day being 114 cases, on March 21.

Water supply not incriminated—One infected dairy.—It was stated that the water supply of the city was found on examination not to be the source of infection. One infected dairy was reported found. The type of the disease was stated to be mild.

The United States Government has placed an embargo on the shipment of milk into the United States from the vicinity of Montreal.

ECUADOR

Plague—Guayaquil—January 16–31, 1927, and February 1–15, 1927.—Plague has been reported at Guayaquil, Ecuador, as follows: January 16 to 31, 1927—cases, 12; deaths, 3; February 1–15, 1927—cases, 26; deaths, 4.

Plague-infected rats.—From January 16 to 31, 1927, of 13,411 rats taken 51 were found plague infected; from February 1 to 15, 1927, of 12,452 rats taken 25 were found infected.

Smallpox.—During the period January 16 to 31, 1927, a case of smallpox was reported at Guayaquil.

MADAGASCAR

Plague—December 16–31, 1926.—During the period December 16 to 31, 1926, 152 cases of plague with 141 deaths were reported in the island of Madagascar from six Provinces. The distribution of occurrence according to type was: Bubonic, cases, 80; pneumonic, 34; septicemic, 38. Urban occurrence was reported as follows: Antisirabi, cases, 2; Tananarive town cases, 5.

Plague—Year 1926.—During the calendar year 1926 there occurred throughout the island of Madagascar 2,146 cases of plague, 1,966 of which were fatal, as compared with 1,779 cases, of which 1,586 were fatal, in 1925, representing a 24 per cent increase in deaths in 1926. The year 1926 is also notable for the largest number of plague deaths of Europeans ever known in the colony, namely, seven, all of which occurred between August 15 and October 15, 1926.

Plague cases and deaths in Madagascar, 1926

Month	Cases				Deaths			
	Bubonic	Pulmonary	Septicemic	Total	Bubonic	Pulmonary	Septicemic	Total
January	175	98	61	334	149	94	60	303
February	143	82	52	277	129	81	52	262
March	71	77	38	186	66	77	38	181
April	28	35	38	101	22	35	38	95
May	10	11	10	31	10	11	10	31
June	15	46	5	66	14	32	5	51
July	7	10		17	6	10		16
August	63	39	40	142	52	39	40	131
September	102	47	34	183	90	47	34	171
October	87	97	72	256	67	93	72	232
November	141	82	56	279	107	76	56	239
December	131	72	71	274	112	71	71	254
Total	973	696	477	2,146	824	666	476	1,966

Births and deaths—Comparative.—In 1925 the total number of births among the native population was 74,244, and of deaths 74,850, as compared with 75,654 births and 65,983 deaths in 1924. Figures for 1926 are not yet available.

VIRGIN ISLANDS

Communicable diseases—February, 1927.—During the month of February, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	1	
Gonorrhea	8	
Leprosy	1	
Syphilis	4	Primary, 2; secondary, 2.
St. Croix:		
Filariasis	3	Bancrofti.
Gonorrhea	5	
Leprosy	2	
Tetanus	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given:

Reports Received During Week Ended April 1, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
French Settlements in India	Dec. 5-18	1	1	
India	Jan. 9-22			Cases, 5,949; deaths, 3,306.
Calcutta	Jan. 30-Feb. 5	32	29	
Rangoon	do	1	1	
Siam				Jan. 30-Feb. 5, 1927: Cases, 43; deaths, 32. Apr. 1, 1926-Feb. 5, 1927: Cases, 7,982; deaths, 5,263.
Bangkok	Jan. 30-Feb. 5	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 1, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Argentina	Jan. 9-15	5		
Canary Islands:				
Las Palmas	Feb. 12	1		
Ceylon:				
Colombo	Feb. 6-12	1	1	Plague-infected rats, 3.
Ecuador:				
Guayaquil	Jan. 16-Feb. 15	38	7	Rats taken, 25,863; found infected, 76.
India	Jan. 9-22			Cases, 2,768; deaths, 1,847.
Bombay	Jan. 30-Feb. 12	2	2	
Madras Presidency	Jan 23-29	102	66	
Rangoon	Jan. 30-Feb. 5	6	6	
Iraq:				
Baghdad	Jan 23-29	1	1	
Java:				
Batavia	Jan. 30-Feb. 5	22	21	Province.
East Java and Madura	Jan 16-22	1	1	
Madagascar				Dec. 16-31, 1926: Cases, 152; deaths, 141. Bubonic, 80; pneumonic, 34; septicemic, 38.
Antsirabi town	Dec. 16-31	2	2	Pneumonic.
Ambositra Province	do	10	10	Bubonic.
Itasy Province	do	14	14	Bubonic, 5; pneumonic, 4; septicemic, 5
Majunga Province	do	3	1	Bubonic, 2; septicemic, 1 case, 1 death.
Moramanga Province	do	18	14	Bubonic—cases, 10; deaths, 6; Pneumonic—cases, 1; Septicemic, 7.
Tamatave Province	do	1	1	Bubonic.
Tananarive Province	do	104	99	Bubonic—cases, 52; deaths, 48. Pneumonic—cases, 27; deaths, 26. Septicemic—cases, 25; deaths, 25.
Tananarive town				Dec 16-31, 1926: Cases, 4; deaths, 4.
Nigeria	Nov. 1-30	134	127	
Siam				Jan. 30-Feb. 5, 1927. Cases, 3; deaths, 3. Apr. 1, 1926-Feb. 5, 1927: Cases, 35; deaths, 26.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Dec. 21-31	99		
Do	Jan. 1-20	86		
Brazil:				
Rio de Janeiro	Feb. 6-12	3	3	
Canada	Mar. 6-12			Cases, 38.
Alberta	do	22		
Manitoba	do	1		
Ontario	do	12		
Do	Feb. 1-28	104		
Ottawa	Mar. 13-19	1		
Toronto	Mar. 6-12	4		
Saskatchewan	do	3		
Chosen	Nov. 1-30	6	3	
France	Dec. 1-31	79		
Paris	Feb. 11-20	4		
French settlements in India	Dec. 4-18	10	10	
Gold Coast	Nov. 1-30	2		
Great Britain:				
England—				
Sheffield	Feb. 20-Mar. 5	63		
India	Jan. 9-22			Cases, 9,958; deaths, 2,467.
Bombay	Jan. 30-Feb. 12	79	29	
Calcutta	Jan. 30-Feb. 5	77	66	
Madras	Feb. 13-19	36		
Rangoon	do	3	2	
Iraq:				
Baghdad	Jan. 23-29	1		
Italy	Nov. 14-Jan. 1	12		
Japan	Dec. 5-25	19		
Java:				
East Java and Madura	Jan. 16-22	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 1, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico	Oct. 1-31			Deaths, 121.
Mexico City	Feb. 20-26	1		Including municipalities in Federal District.
Torreon	Feb. 27-Mar. 5		3	
Nigeria	Nov. 1-30	5		
Poland	Dec. 26-31			Cases, 2; deaths, 1.
Do	Jan. 1-8			One death.
Portugal:				
Lisbon	Feb. 20-26	3		
Siam				Jan. 30-Feb. 5, 1927: Cases, 7; deaths, 3. Apr. 1, 1926-Feb. 5, 1927: Cases, 731; deaths, 280.
Bangkok	Jan. 30-Feb. 5	5	3	
Spain:				
Valencia	Feb. 27-Mar. 5	2		
Tunisia	Jan. 1-20	8		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Jan. 1-20			Cases, 21.
Algiers	Feb. 11-20	5		
Argentina:				
Rosario	Jan. 25-31		3	
Bulgaria	Dec. 1-31	6		
Chosen	Nov. 1-30	36		
Seoul	Jan. 1-31	2	1	
Egypt:				
Alexandria	Jan. 22-28	1		
Greece:				
Athens	Feb. 1-28	4		For all Greece: Cases, 5; deaths, 1.
Lithuania	Dec. 1-31	17	1	
Mexico	Oct. 1-31			Deaths, 22.
Mexico City	Feb. 20-Mar. 5	5		Including municipalities in Federal District.
Poland	Jan. 1-15	115	4	
Tunisia	Jan. 1-20	21		

YELLOW FEVER

Gold Coast	Nov. 1-30	2	2	
Nigeria	do	3	3	

Reports Received from January 1 to March 25, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 4	130	96	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-8			Cases, 3,080; deaths, 1,757.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-29	283	215	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-29	3	3	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-31			Cases, 2,204, deaths, 1,350. European, 1.
Saigon	Oct 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; death, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-29	92	67	
Bangkok	Oct 31-Jan. 1	16	5	
Do	Jan. 9-29	6	2	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan 11-19	3	2	
Oran	Nov. 21-Dec 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola.				
Benguela district	Oct. 1-Dec. 31	17	10	
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Azores:				
St. Michael's Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 23	2	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8	1		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Feb. 5	20	9	5 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-15	5	3	Rats taken, 10,261; found infected, 53.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-28			Cases, 13.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-8			Cases, 1,766; deaths, 1,200.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-22	2	2	
Madras	Oct. 31-Jan. 1	581	324	
Do	Jan. 2-22	333	210	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-29	16	15	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13
Cochin-China	do	8	4	July, 1925: No cases.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Iraq:				
Baghdad	Jan. 30-Feb. 5	1		
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-29	101	97	
East Java and Madura	Dec. 19-Jan. 1	3	3	
Do	Jan. 2-15	3	3	
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar:				
Province—				
Analalava	Oct. 16-31	1	1	Bubonic.
Itasy	Oct. 16-Dec. 15	25	25	
Maevatanana	Oct. 16-31	10	10	
Moramanga	Oct. 16-Dec. 15	74	53	
Tamatave	Oct. 16-Nov. 30	14	1	
Tananarive	Oct. 16-Dec. 15			Cases, 429; deaths, 398.
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 15	44	30	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Port Louis	do	20	18	
Nigeria	Aug. 1-Oct. 31	865	775	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-31	47	10	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-31	1		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-31	46	10	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22
Do	Jan. 16-29			Cases, 2; death, 1.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djemeniana	do	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa:				
Cape Province—				
De Aar district	Nov. 21-27	1		Native.
Craddock district	Jan. 2-8	2	1	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-22	3		
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926. Reported Dec. 17.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20			Cases, 698.
Algiers	Dec. 11-31	4		
Do	Jan. 1-Feb. 10	3		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 5	48	22	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Mar. 5			Cases, 378.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Mar. 5	98		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 6	6		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Mar. 5	19		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Feb. 26	217		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-29	4		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Mar. 5	58	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Mar. 5	42		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-30	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 2-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 8	33	22	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Present.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 30-Feb. 5		1	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-22	2		
Chosen	Aug. 1-Oct. 31	47	16	
Seoul	Nov. 1-30	2		
Egypt				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Nov. 30	214		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Feb. 10	13	3	
French Settlements in India	Aug. 29-Dec. 4	108	108	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Oct. 31	57	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Feb. 19			Cases, 3,524.
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Feb. 19	15		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Feb. 19	421		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-31		23	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,009.
Do	Jan. 2-8			Cases, 4,270; deaths, 1,028.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-29	61	45	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-29	484	356	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Feb. 12	26	24	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Feb. 12	95	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-29	9	5	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Saigon	Dec. 26-Jan. 1	3		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Nov. 13	16		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 5	45		
Japan	Oct. 24-Dec. 4	6		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Dec. 17-25	1		
Do	Jan. 2-8	1	2	
Soerabaya	Oct. 24-Nov. 27	10	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Sept. 30		413	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5	6		
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Feb. 19	4		Do.
Nuevo Leon State:				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	do			About 60 cases reported in one hospital; other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Mar. 5		17	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Feb. 26		9	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Oct. 31	73	4	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 25			Cases, 30; deaths, 2.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Feb. 19	19		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-15	1		
Siam	Apr. 1, 1926-Jan. 1, 1927.			Cases, 711; deaths, 268.
Do	Jan. 2-29			Cases, 13; deaths, 9.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-29	13	9	
Sierra Leone:				
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-21	2		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Tunis	Jan. 1-10	1		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality: Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethal district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Algiers	Feb. 1-10	7		
Argentina:				
Rosario	Dec. 1-31		1	
Bulgaria	July 1-Nov. 30	33	5	
Chile:				
Concepcion	Jan. 23-29		1	
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan 2-22	4	1	
China.				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Oct. 30	17	2	
Seoul	Nov. 1-30	1		
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt.				
Alexandria	Dec 3-9		1	
Cairo	Oct. 29-Nov. 4	1	1	
Esthonia	Dec. 1-31	1		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Lithuania	Sept. 1-Nov. 30	24	3	
Mexico	July 1-Aug. 31			Deaths, 46.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Feb. 19	53		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 25-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to March 25, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Tunisia	Oct. 1-Dec. 27	30		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 16-22			Outbreaks.
East London	Nov. 21-27	1		Native Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 16-22			Outbreaks.
Transvaal	Oct. 1-31	1		
Yugoslavia	Nov 1-Dec. 31	30	2	
Do	Jan. 1-31	43	3	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Sept. 30	8	3	
Nigeria	Sept. 1-31	1		
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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COMPENDIUM OF THE PARASITES OF MOSQUITOES CULICIDAE

Up to the time of Sir Patrick Manson's discovery that mosquitoes transmit *Filaria* to man, these insects were generally considered as of little importance medically, but of more importance as pests and because of their interference with sleep. That mosquitoes are directly responsible for the transmission of disease was an epoch-making discovery, and was followed by many experiments in this field of research. An especially noteworthy result was the work of Ross and of Grassi, in the problem of the transmission of malaria to man by mosquitoes—an hypothesis previously advanced especially by King.

Later, the experiments of Carroll, Lazear, Reed, and Agramonte proved conclusively that yellow fever is transmitted directly by the bite of a mosquito—a view which had previously been advanced by several authors, especially Finlay.

The placing of the responsibility for transmission of certain diseases of man and other animals upon the mosquito has given this insect an economic status of increased importance and has resulted in closer observation of the parasites of mosquitoes.

Because of the medical importance of mosquitoes in the transmission of disease, it seemed opportune to collate and present a catalogue of all the parasites reported for mosquitoes, and this has been done by Alma J. Speer in Hygienic Laboratory Bulletin No. 146, Compendium of the Parasites of Mosquitoes Culicidae, now in the hands of the printer. Among the parasites reported from this widespread study are many that are more or less pathogenic for the mosquitoes themselves. A notable example is *Agamomermis*, now recognized as fatal to mosquitoes in many cases; and the problem suggests itself whether parasites can be used in the control of mosquitoes.

AN ADVANCED SCHOOL OF MALARIOLOGY TO BE ESTABLISHED IN ROME

Through the Department of State, the Royal Italian Government has brought to the attention of the Government of the United States the plan of the former Government to establish in Rome an advanced school of malariology, with the suggestion that, as the establishment of such a school will be of great interest to all malaria students, the matter be brought to the attention of malaria workers in this country.

Following is a statement of the Italian ambassador:

Studies on malaria which have been carried on in Italy with continuous success have, during the last 50 years, been perfected, as a result of several happy coincidences and thanks to the labors and initiatives of illustrious personalities.

Italy, better than any other country, offers a suitable field for direct and clinical observations, and for objective conclusions on the results obtained with the use of preventive means employed both alone and in connection with other measures.

The Royal Italian Government, therefore, has come to the decision of instituting in Rome an advanced school of malariology.

This school will first of all concern itself with the study of climatic factors, including the flora and fauna of infected zones, and will especially apply itself to the study of the germ producing the malady and of *Anopheles* mosquitoes. It will then devote itself to the genesis of the illness, its symptoms, its clinical forms, its consequences, and its treatment, on the one side, and, on the other side, the school will consider the various means to prevent the spread of infection and to redeem the infected zones by reclaiming the soil and fostering cultivation.

The instruction given in the school, which will be as much as possible, of the character of an object lesson, will consist, in its fundamental lines, of practical experiments on the part of the students. Besides the ordinary lessons, there will be lectures by eminent persons, both Italian and foreign, considered as authorities on the matter.

During the course, which will last from May to October, there will be excursions and trips on reclaimed lands or in the zones under process of reclamation and in the infected areas. The school will be divided into two sections: One technical and scientific, which will be reserved mostly for physicians; the other economic, reserved to engineers, agriculturists, administrative personnel, and persons interested in social work. These two sections will have several teachers in common, but each section will have its own subjects. Each section will grant, after examinations, a diploma to its graduates.

The Italian ambassador has received instructions to bring the foregoing information to the knowledge of the Government of the United States, with the request to have the competent departments, institutes, universities, and persons interested in malariologic studies informed of the existence of the school, signifying at the same time that the Royal Italian Government would be gratified if citizens of the United States, physicians, engineers, agriculturists, and other persons interested in the subject, would register as students in the advanced school of malariology.

THREE YEARS WITHOUT A DEATH FROM DIPHTHERIA IN AUBURN, N. Y.

Three years without a death from diphtheria is the enviable record that has been achieved by Auburn, N. Y., a city of over 35,000 population, which had from 4 to 17 deaths annually from diphtheria during the years 1915 to 1920, and averaged 9 deaths annually from the disease from 1915 to 1923. The following is taken from the Health News, published by the New York State department of health, issue of March 21, 1927:

March 8 marked the end of three years since a death from diphtheria has occurred in the city of Auburn.

During 1926, but 7 cases of diphtheria occurred as compared with 18 during 1925. In January and February of the present year 7 cases developed. Of these, 4 occurred in one family, 3 being in children who had received toxin-antitoxin only six weeks previously and who therefore had not had sufficient time to develop an immunity. These cases were all very mild. One case occurred in a boy who had not had the protective treatment, one was in a baby in a family where all other members had been immunized. Another case had received but one dose of toxin-antitoxin three years previously.

The entire record shows the remarkable results which follow when a large part of the child population has been immunized against diphtheria.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Abattoir ordinance held to create a monopoly.—(Georgia Supreme Court; City of Waycross et al. *v.* Caulley, 136 S. E. 139; decided December 20, 1926.) An ordinance of the city of Waycross purported to grant an exclusive franchise to certain private individuals for a term of years, authorizing them to establish and maintain an abattoir. The ordinance also provided that all meat slaughtered in the city, exclusive of Federal Government inspected meat, should be slaughtered in the said abattoir and that all killing of animals for food to be used in the city should be done therein. A scale of prices to be charged for the killing of animals was given, and inspection provided for. The ordinance, however, contained no provision authorizing persons other than the grantees of the franchise to slaughter animals at the abattoir. The supreme court held that the ordinance denied "a skilled butcher having an established business the right to slaughter at the abattoir or elsewhere his own animals for food to be used in the city"; that the ordinance, to the extent that it denied such right, created a monopoly; that the city charter gave no express or implied power to the mayor and aldermen

to grant such a monopoly; and that the ordinance was void in so far as it interfered with the right to slaughter animals as above set forth.

License ordinance held invalid because discriminatory.—(Kansas Supreme Court; Ex parte Irish, 250 P. 1056; decided December 11, 1926.) An ordinance of the city of Holton imposed a license fee of $150 per year on each person, firm or corporation, not a resident of the city, who sold any bread or bakery products in the city. This ordinance was upheld by the supreme court in a decision rendered May 8, 1926, but on December 11, 1926, on a rehearing, the court declared the ordinance to be invalid, because violative of the Federal Constitution in that it discriminated between residents of the city and nonresidents.

Compensation granted under workmen's compensation act for death from typhoid fever.—(Illinois Supreme Court; John Rissman and Son *v.* Industrial Commission et al., 154 N. E. 203; decided October 28, 1926.) An employee died from typhoid fever contracted from the drinking of contaminated water furnished by the employer. In a proceeding under the workmen's compensation act, the supreme court, in granting compensation, stated as follows:

> The real question in this case is whether or not the death of the deceased can be said to be the result of an accidental injury. This question has really, from the evidence in this record, been practically decided by the decision of this court in Christ *v.* Pacific Mutual Life Ins. Co., 312 Ill. 525, 144 N. E. 161, 35 A. L. R. 730, in which case this court decided that typhoid fever may be regarded as accidental if the disease is contracted by accidental means. * * *
>
> * * * In this case the deceased intended to drink the water furnished by the defendant in error, but she did not intend to drink polluted water or water contaminated with typhoid germs. The contraction of typhoid fever by the deceased from the drinking of such water was unexpected and not foreseen by her, and may therefore be said to be accidental. The evidence in the record is to the effect that it was the water that was contaminated with typhoid germs. * * *

Typhoid fever held not compensable under workmen's compensation act.—(Texas Commission of Appeals, Section B; Buchanan et al. *v.* Maryland Casualty Co., 288 S. W. 116; decided November 24, 1926.) In an opinion of the commission of appeals, which opinion was adopted by the supreme court, answers were given to certain questions certified to the supreme court. These answers were that, under the Texas workmen's compensation act, typhoid fever, contracted by an employee as a result of impure water or food furnished by an employer, was neither an accidental injury nor a compensable injury. The compensation act contained a provision that "The terms 'injury' or 'personal injury' shall be construed to mean damage or harm to the physical structure of the body and such diseases or infection as naturally result therefrom."

Order of city health commissioner to abate nuisance upheld.—(Massachusetts Supreme Judicial Court; Commonwealth *v.* Collins, 154 N. E. 266; decided November 29, 1926.) In a proceeding against the defendant for a violation of a notice or order of the health commissioner of the city of Boston to abate a nuisance on certain premises, the action and order of the commissioner were upheld by the supreme court. The opinion in the case considers in detail the various technical exceptions taken by the defendant.

Act authorizing construction and operation of public water supply system and proceedings thereunder upheld.—(Virginia Supreme Court of Appeals; Kirkpatrick et al. *v.* Board of Supervisors of Arlington County et al., 136 S. E. 186; decided November 26, 1926.) An act of the Virginia Legislature passed in 1926 authorized any county of the State, having more than 300 inhabitants per square mile as shown by the last preceding United States census, to issue bonds "for the purpose of constructing and operating a public water-supply system in any magisterial district or districts in the said county." In 1922 the legislature had passed an act creating out of Arlington County a sanitary district and subdividing it into various zones and districts for the purpose, among other things, of providing a publicly owned water-supply system or systems within the county. An election was held in Arlington County under the 1926 act and the issuance of bonds for a public water supply authorized. In a suit to enjoin the issuance of the bonds it was contended that the 1926 act was a general law and was not applicable to Arlington County, because the prior special act of 1922, covering the same matter, was in force in that county. However, the court took judicial notice of the fact that Arlington County was the only county in Virginia which had a population of more than 300 per square mile, and held that both acts were applicable to Arlington County, a choice of two means of financing a publicly owned water system being left to the people. It was also contended that the 1926 act was unconstitutional and that the election held thereunder was void, but the court's holding was adverse to these contentions and an injunction was refused.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Measuring Quality of Water now a Standardized Practice. Jack J. Hinman, jr., associate professor of sanitation, State University of Iowa. Water Works Engineering, vol. 80, No. 4, February 16, 1927, pp. 232 and 235. (Abstract by William L. Havens.)

The standardization of methods of water examination has made remarkable progress since the early studies of the American Association for the Advancement of Science in the eighties. In 1897 the American Public Health Association began a study of the problem

which resulted in the 1905 edition and subsequent editions of the Standard Methods of Examination of Water and Sewage. The publication of this book has proved of considerable value in unifying laboratory practices and in allowing a comparison of results from different plants and laboratories. Attention has recently been given not only to the necessity for frequent examinations, mass data, and reliability of operation, but also to such more recent developments as the hydrogen ion concentration, fecal and nonfecal types of colon organisms, nonconfirming spore-forming, lactose-fermenting bacteria, and the orthotolidine test for free chlorine. The writer believes that, at the present time, however, there is an unwise tendency to scrap some of the older chemical methods tending to add testimony of value to the indications of the bacteriological investigation and the sanitary survey. Considerable attention will undoubtedly be given in the future to improvements of mineral characteristics, as, for example, the treatment of hard waters and those having high iron contents. It is practically certain also that requirements will be more rigid than they are now and that full advantage will have to be taken of all developments in water purification and control.

Wells and Guinea-Worm Disease in Bombay City. Anon. The All India Local and Municipal Self-Government Gazette, vol. 13, No. 5, November, 1926, pp. 236–237. (Abstract by R. E. Tarbett.)

The adult guinea worm appears under the skin of the lower extremities of the infected person. It discharges its embryos in contact with water, and these enter *Cyclops* which may be in the water. When water containing infected *Cyclops* is ingested, the embryos are liberated and burrow in the tissue and develop, and after some months the female makes its appearance at the skin surface. The water of the municipal lakes very rarely showed *Cyclops*, and it was assumed that the infection was from wells. Several wells were examined and *Cyclops* were found although none were infected. Water from wells is obtained through water carriers, some of whom were found to be infected, and these carriers were considered as the chief source of the disease. Wells found to have cyclops were treated with potash permanganate. It was recommended that all wells have tight tops and pumps. Other measures were the control over the water carriers and the periodic treatment of all wells with permanganate.

A Survey of Connecticut Rural School Water Supplies. Warren G. Scott. Nation's Health, vol. 8, No. 12, December 15, 1926, pp. 825–826 and 870. (Abstract by F. C. Dugan.)

A survey of the water supply of schools in various sections of the State showed many conditions that should be corrected. Out of 680 supplies, less than 10 per cent might be classed as satisfactory. About 20 per cent were found to be fairly satisfactory, and the remaining 70 per cent ranged from unsatisfactory to unsafe.

In a number of schools it was found that more care was needed in the method of distributing the water in the school. The most striking point brought out by this survey was the large number of wells and springs poorly constructed. Such a survey as this would be of the greatest benefit to every State in the Union.

Housing and the Regional Plan. John Ihlder. American City, vol. 35, No. 5, November, 1926, pp. 636–638. (Abstract by A. L. Dopmeyer.)

A definition of "metropolitan region" is given and some of the problems are discussed which enter into regional planning.

The author believes it important to keep the various urban units in a region separate, but at the same time provide for accessibility and communication, the communities keeping their individuality by surrounding open areas.

Several assumptions as to housing for the regional area are outlined, principally, the desirability of decreasing the speculative element and increasing the investment element. Stabilizing the character of a neighborhood is believed essential. Among the major items of regional planning briefly discussed are the following: (1) Open spaces; (2) transit; (3) water; (4) sewage disposal; and (5) police and fire protection. The methods used in Germany and England for preserving open spaces are discussed in some detail. The question as to what our policy in this respect will be is left unanswered.

City Planning and Zoning Aided by the Florida Hurricane. Robert M. Kerr, American City, vol. 35, No. 5, November, 1926, p. 693–696. (Abstract by A. L. Dopmeyer.)

In June, 1926, Fort Lauderdale accepted a comprehensive city plan by special election, and shortly thereafter the city council passed a zoning ordinance. There were five separate questions on the ballot, which are discussed briefly in this article. The questions concerned—(1) Proposed street widenings and extensions in the old main sections of the city; (2) beautification of river drives in the central part of the city; (3) main arterial thoroughfares and secondary streets; (4) a proposed civic center; and (5) a park, parkway, and recreational plan.

The recent storm is said to have emphasized to the people the need of building wisely for permanency and in accordance with modern standards. Incidentally, buildings damaged in the storm, that project beyond the new setback lines, if rebuilt, must recognize the new lines.

The map of the city showing improvements in the street plan is reproduced, and a plan for the new river parkway is shown. There is also a drawing showing a probable view of the river front after proposed changes have been made.

The Housing Conditions of Copenhagen. Povl Heiberg, M. D., deputy city medical officer of health of Copenhagen. League of

Nations Health Organization in Denmark. Doc. C. H./E. P. S./49. pp. 322–332. (Abstract by H. B. Hommon.)

A brief history of housing conditions in Copenhagen is given as far back as the year 1500 and the operation of the Copenhagen building societies, which build and control, to a large extent, the dwellings occupied by workmen, is described in detail.

A housing commission, consisting of a mayor, the chief city medical officer of health, a municipal architect, the vice director of the city police, the chief of the fire brigade, and a member of the town council, carry out the provisions of the present building act.

Why Property Zoning is a Necessary Public Health Measure. Geo. M. Kober, Nation's Health, vol. 8, No. 10, October 15, 1926, pp. 668–670. (Abstract by F. C. Dugan.)

This article is an abstract of the testimony given by Doctor Kober in defense of the constitutionality of the zoning law enacted for the District of Columbia. It brings out the various objectionable features which business houses bring to a residential community and points out that having specified areas set aside for resident, business, and industrial purposes accomplishes the greatest amount of good for the greatest number of people.

Stream Pollution and Its Effects. N. T. Veatch, jr., consulting engineer, Kansas City, Mo. Journal American Water Works Association, vol. 17, No. 1, January, 1927, pp. 58–63. (Abstract by J. K. Hoskins.)

The increasing urban population and the demand for sewerage facilities in the smaller communities are resulting in more general and intensive pollution of streams, thereby endangering one of our most valuable natural resources—the public water supply derived from surface sources. To reduce the burden placed on water-purification plants treating such waters, proper methods of sewage treatment must be adopted. Data from Public Health Bulletin No. 143 are quoted giving the equivalent population in terms of polluting constituents of various industrial wastes. The amount of oxygen required for satisfaction of the organic constituents of sewage is also briefly discussed, as well as the extent of dilution required to prevent nuisance in the receiving stream. Support of Federal and State research studies on these subjects is emphasized.

The Prevention of River Pollution. F. B. Preston. Surveyor, vol. 71, No. 1828, February 4, 1927, pp. 177–180. (Abstract by H. W. Streeter.)

The author discusses the administrative and technical aspects of stream pollution in Great Britain, especially pollution by trade wastes and its prevention. He notes certain weaknesses in past regulatory legislation, mentioning particularly the exemptions permitted by a faulty definition of "solid matter."

In discussing the relation between river pollution and fish life, he stresses the importance of biological studies of the effects which wastes of various kinds and concentrations may exert on the small water animals and plants on which depend the ultimate survival of fish. He also notes the toxic effect which tar wastes have on fish, stating that trout succumb in concentrations of 1 to 80,000 parts in 18 or 20 hours. Water which has taken up tar poisons retains its toxicity for a long time.

Methods for treating wastes from paper mills, creameries, beet-sugar factories, and gas plants are described.

Stream Pollution in Michigan. Edward D. Rich, State sanitary engineer. Proceedings, third annual meeting Lake Michigan Sanitation Congress, vol. 3, No. 1, January, 1927, pp. 20–22. (Abstract by I. W. Mendelsohn.)

In the fall of 1925, a new policy regarding stream pollution in Michigan was inaugurated by joint cooperation of the department of health and the department of conservation. Representatives of municipalities having sewer systems were called to Lansing by groups according to river drainage basins, and the problem was considered as affecting each municipality. Then groups of industries according to their nature were called.

The State departments recommended the following: (1) A thorough engineering study of local conditions and an estimate of the cost and time required to install satisfactory treatment works; (2) an orderly program by municipalities to obtain the necessary funds annually for construction of the treatment works in sections. In the case of industries, committees composed of their own members have been appointed by them to cooperate with the State in making studies to determine the most satisfactory and economical methods of treatment for their wastes. Satisfactory action has resulted already from these conferences.

Disposal of Canning Factory Waste. E. F. Eldridge. The Canner, vol. 62, No. 20, May 8, 1926, pp. 23–26. (Abstract by L. M. Fisher.)

Pressure of public opinion requires officials to take action to keep trade wastes out of streams. Polluting material is divided into three classes—(1) poisonous wastes, such as acids, alkalies, phenols, insecticides, and other toxic substances; (2) wastes carrying pathogenic bacteria, such as sewage, raw garbage; (3) wastes containing unstable organic and, sometimes, inorganic material, such as tannery, paper, milk, and cannery wastes. Cannery wastes are very unstable and soon reduce the oxygen content of streams. A decrease of 40 per cent of the normal oxygen content will have a detrimental effect on the life in the stream. Complete removal of oxygen becomes a hindrance to the self-purification of the stream.

Screenings and burial of screenings, settling of the screened liquid in Dorr tanks or clarifiers, and burial of sludge with the screenings are discussed.

Because cannery wastes are sometime alkaline and sometimes acid, chemical precipitation, using lime and ferrous sulphate, or alum, give promising results. The liquid must be further stabilized by slow sand contact or sprinkling filter treatment.

The efficiency of any method will be determined by the oxygen demand of the final effluent. The whole idea is to lower the oxygen demand of the wastes to such a point that it will have no effect on the plant and animal life in the stream.

POPULATION OF HOSPITALS FOR THE INSANE

Data for August, 1926

Reports for the month of August, 1926, were received from 139 institutions.

The total number of patients increased 0.28 per cent during the month. The number in hospitals increased 0.26 per cent and the number on parole increased 0.49 per cent.

First admissions constituted 80.58 per cent of the total admitted; readmissions 15.33 per cent, and 4.09 per cent of the admissions were by transfer or not accounted for.

Of the patients discharged 27.86 per cent were recorded as recovered, 50.39 per cent as improved, 15.11 per cent as unimproved, 4.33 per cent as without psychosis, and 2.31 per cent were "otherwise discharged" or not accounted for.

There were 1,067 male patients per 1,000 females at the end of the month.

On August 31, 7.80 per cent of the total number of patients were on parole or otherwise absent from the institutions.

The deaths for the month numbered 1,277, which gives an annual death rate of 73.28 per thousand patients under treatment.

Movement of patient population in 139 hospitals for the care of the insane during August, 1926

Number of institutions included:	
Public	118
Private	21
Total	139
Patients on books Aug. 1, 1926:	
In hospitals	185, 054
On parole or otherwise absent but still on books	15, 613
Total	200, 667

Admitted during August:	
First admissions	3, 605
Readmissions	686
Admitted by transfer	182
Not accounted for	1
Total received during month	4, 474
Total on books during month	205, 141
Discharged during August:	
As recovered	688
As improved	1, 244
As unimproved	373
As without psychosis	107
Otherwise discharged	54
Not accounted for	3
Total discharged during August	2, 469
Transferred	163
Died	1, 277
Total discharged, transferred, and died during August	3, 909
Patients on books Aug. 31, 1926:	
In hospitals	185, 543
On parole or otherwise absent but still on books	15, 689
Total	201, 232
Male patients	103, 859
Female patients	97, 373

REVIEW OF LITERATURE ON THE PHYSIOLOGICAL EFFECTS OF ABNORMAL TEMPERATURES AND HUMIDITIES[1]

By R. R. SAYERS, *Surgeon, United States Public Health Service, Chief Surgeon, Department of Commerce, Bureau of Mines*, and SARA J. DAVENPORT, *Principal Translator, Department of Commerce, Bureau of Mines.*

Introduction

Atmospheric conditions under which people live and work have a marked effect upon their health and efficiency (1).[2] Two of the most important conditions are temperature and humidity. The general connection between temperature and humidity and human health and efficiency, of course, has been discussed in the literature in relation to the climate and seasonal variation in different parts of the world, but their influence within doors, as in the home, in places of amusement, and in the industries, has not been sufficiently considered until more recently. Emphasis usually has been placed on the gaseous constituents of the air in such places.

[1] Published with the approval of the Director of the Bureau of Mines.

[2] The numbers in the text refer to the bibliography at the end of the article.

With the discovery by Black (2) in 1757 that the expired air differed from the inspired air by the addition of what he called "fixed air," in which he observed that animals died of suffocation, and with the belief expressed in 1777 by Lavoisier (3) that the gas, which he named oxygen, taken into the body combined with carbon to form "fixed air," or carbon dioxide, the idea originated that the ill effects experienced by people crowded together in small inclosed and poorly ventilated spaces were due to the lack of oxygen and the accumulation of carbon dioxide. This idea still prevails rather generally, although it has been proved by careful experimentation to be erroneous. As early as 1862 Pettenkofer (4) had questioned the carbon-dioxide theory by calling attention to the fact that the air of a room filled with human beings is disagreeable and offensive and appears foul and nauseous long before it is too greatly deprived of oxygen or laden with more than 1 per cent of carbon dioxide.

It was observed by many investigators that it was not until the oxygen content of the respiratory air fell below 10 per cent that animals began to breathe with difficulty. Friedlander and Herter (5) concluded from the results of their experiments that inhaling 20 per cent carbon dioxide for several hours had no poisonous effect, but that only a stimulation of respiration and an increase in the work of the heart were produced. Not until a mixture of gas containing .30 per cent or more of carbon dioxide was breathed did they find an appearance of depression. Leblanc (6) pointed out that under conditions in which the carbon dioxide content of the air increases considerably, for example, in lecture rooms, theaters, etc., the reduction of oxygen content is inconsiderable and very seldom falls below 20 per cent, while the carbon dioxide content very seldom exceeds 1 per cent.

When it appeared evident that the quantitative changes in the normal air are not great enough to explain the bad effects of the air in dwellings and other poorly ventilated buildings, the question arose as to whether the supposed harmfulness of air rebreathed many times might not be ascribed to the presence in room air of somewhat volatile organic material produced through the respiration and perspiration of human beings. To determine whether such gas-forming organic material is produced by people through normal respiration and perspiration, the rebreathing of which would injure health, Hermans (7) conducted experiments on animals and men for one year, from August, 1881, to August, 1882. He found that dyspnea resulted only when there was at least 3 per cent by volume of carbon dioxide present, and a content of 10 per cent of oxygen caused no disagreeable symptoms as long as the carbon dioxide content did not reach 3 per cent. He observed that the disagreeable sensation experienced by anyone on reentering the test chamber after being in fresh air for

a short time soon disappeared unless the air was humid and hot and, therefore, concluded that fainting and the like which occur in unventilated rooms is not due, except in very definite cases, to the expiration of harmful gases, but to insufficient cooling.

Brown-Sequard and d'Arsonval (8), from a series of experiments conducted in 1888, concluded that the lungs of man, dog, and rabbit in a state of health produce continuously with the expired air an extremely energetic poison and that it is extremely probable, if not certain, that it is this toxic agent which renders confined air so dangerous; but the experiments of Beu (9), Rauer (10), Lübbert (11), Lehmann and Jessen (12), and others proved that Brown-Sequard's results were entirely incorrect.

Krieger (13) considered that the hygienic value of ventilation with the object of restoring pure air in dwellings, schools, and sick rooms is not so great as is usually supposed. Much more important is ventilation in the interest of the heat economy of the body, for the production of a proper temperature and agitation of the air, as well as for the regulation of the humidity.

In 1903, W. Mehl, an engineer (14), emphasized the fact that a "breath poison" does not exist, that the carbon-dioxide content of the air is not a correct measure of the necessity for ventilation, that injury to health proceeds from excessive heat and humidity, and that the cooling and drying power of the atmosphere is of more value than the control of impurities, or of gases as carbon dioxide.

Paul and Ercklenz (15) had different persons remain for several hours in a glass chamber of 3 cubic meters capacity so that the carbon dioxide content of the air rose to 10 or 15 parts per thousand. As long as the temperature of the chamber was kept down, there were no bad symptoms. A trial of mental weariness by means of the aesthesiometer and ergograph or by problems in arithmetic gave negative results. Sick people suffering from emphysema, heart disease, kidney trouble, anemia, scrofula, etc., showed no bodily or mental injury from being confined in the experiment chamber in very impure air. The results of the experiments were entirely different as soon as the temperature and humidity were raised. At 78.8° F. with moderate humidity, or at 70° to 73° F. with high humidity, almost all the subjects began to experience discomfort, congestion in the head, anguish, dizziness, and nausea. The sensitiveness was not the same in all persons; the reaction of school children was relatively slight, also that of the emphysematous; the most sensitive were those suffering from heart disease. Paul and Ercklenz then conducted a series of experiments by setting in motion the impure air in the chamber without admitting any fresh air. The brisk circulation of the air laden with gas-forming excretions decreased the heat of the body, evaporated the moisture,

and thereupon the ill effects of the still hot air disappeared. In another experiment Paul introduced from the outside, pure air of the same temperature and humidity as that of the experiment chamber, with the same disturbances resulting to the subjects as those caused by the hot, damp, impure air of the chamber.

In one case reported by Flügge (15) a man was placed in the chamber, the temperature of the chamber air being 30.2° C., the relative humidity 87 per cent, and the carbon dioxide content 1.1 per cent. He was not relieved of his discomfort by breathing through a tube the cool outside air, but his symptoms were allayed by a fan inside the chamber.

From the work of Paul and Ercklenz and other investigators, with which he was familiar, Flügge (15) concluded that it is not the chemical composition of the air but the overheating of rooms that has the chief evil influence on health, and it is the latter that must be combated; the objection to an evil-smelling atmosphere is to be supported, not on account of its poisonous properties, which have never been proved to exist, but on account of the resulting feeling of nausea; and fresh air is desirable for men, not because they then breathe chemically purer air, but because the continual movement of the fresh air facilitates the loss of heat from their bodies, and exercises besides a very beneficial stimulus on their skins.

Dr. B. R. Hoobler, in a paper (16) before the International Congress on Hygiene and Demography, 1912, called attention to Dr. W. Gilman Thompson's proposition that a physiological method be substituted for the physical or engineers' method of determining the fitness of air for breathing. Doctor Hoobler stated that the carbon-dioxide standard, so long in vogue, took into account only the air in its function as oxygen and carbon-dioxide carrier, leaving out entirely its function as moisture and heat carrier, as well as its effect on the vasomotor and other reflex nervous apparatus. He considered that most of the discomforts of poor ventilation are due to the effect of the air on the body other than the respiratory exchange. Air heavily laden with moisture may be breathed well and feel soothing to the mucous membrane, but such air, already saturated with moisture, will take up no more, so that the whole body becomes bathed in perspiration and the vasomotor and heat centers are worked overtime to accommodate the body to such an environment.

In an experiment described by Sewall (17), with a person confined in an air-tight box 3 by 5 by 7 feet, the percentage of carbon dioxide rose to 50 parts or more in 10,000 and, although the odor was overpowering when the observer opened the door, the subject of the experiment was unconscious of the odor and suffered no discomfort as long as the water vapor was absorbed and the temperature of the box kept low. He gives a similar experiment in which a subject was

kept for 24 hours in a chamber, the air of which held an average carbon dioxide content of 220 parts per 10,000, or over seventy times the normal, together with a reduction of oxygen to less than 19 per cent. The humidity was kept down and the temperature held uniform. The subject of the experiment suffered no discomfort and his body metabolism, as determined by the number of calories of heat given off and the weight of oxygen consumed and of carbon dioxide exhaled, did not differ from that of a control experiment made in pure air.

The appointment of the New York State Commission on Ventilation was announced on June 25, 1913. In 1915 two of the members of this commission, D. D. Kimball and G. T. Palmer, published some of the results of the first year's studies, from which it was concluded (18) that the discomfort in badly ventilated rooms is due mainly to temperature and humidity, and that ventilation is necessary to remove odors as well as to keep down the temperature. It was considered that the same arguments would apply to keeping the air clean as to the personal bathing of the body.

However, Kitchen, in an article (19) published in the Heating and Ventilating Magazine in 1915, stated that while there is no question as to the influence of heat, humidity, and air stagnation as being, in part at least, the cause of the evil influences of poor ventilation, it is not clear that deficiency in oxygen content and the presence of bacteria and volatile organic toxic matters are not also causative. He asked why it is that one feels immediately the influence of air surcharged with the respiration of many human beings, such as is experienced when one enters the subway cars and before any mere influence of heat or moisture on the body can be exercised.

In another article, published in 1915, on the results of the investigations by the New York State Commission on Ventilation, C.-E. A. Winslow and G. T. Palmer (20) found that the experiments seemed to warrant the conclusion that there are substances in the air of an unventilated occupied room (even when temperature and humidity are controlled) which, in some way and without producing conscious discomfort or detectable physiological symptoms, diminish the appetite for food, and that the observed beneficial effects of fresh air may to some extent be connected with this phenomenon.

In a summary of the present state of opinion on the subject of confined air in living rooms and in workshops, Price (21) has the following to say:

> 1. Ordinary decrease of oxygen as found in inhabitated rooms and shops probably does not exert any deleterious influence on the persons within them.
>
> 2. An increase in the content of carbon dioxide from 4 parts to 15 and up to 100 parts in 10,000 volumes is not dangerous to health.
>
> 3. It has not yet been proven that the presence of organic matter in confined air has an important bearing upon the health of the persons therein, although

a prolonged breathing of a large quantity of volatile malodorous products may be followed by nausea, loss of appetite, and general malaise.

4. The ill effects commonly ascribed to impure confined air of ill-ventilated rooms and shops are due not so much to the chemical impurities in the air, as to the physical properties such as increased temperature, higher rate of humidity, and stagnation of the air surrounding the body.

5. An increase of the temperature of confined air in workshops above 70° F., and particularly an increase in the wet-bulb reading of the therometer above the same degree, is probably injurious to health if maintained for too prolonged periods, and may cause fatigue, lassitude, decreased metabolism, anemia, and loss of resistance, predisposing the workers to acute and chronic diseases.

Places of Occurrence of Abnormal Temperatures and Humidities

NATURAL ENVIRONMENT

The first contact of human beings with high and low temperatures and humidities no doubt has taken place in the natural environment, as through seasonal changes in the temperate zones or with changing elevation in a tropical climate. Hoffman (22), in a discussion of the report of the Committee on Public Health Climatology, stated that the large degree of conformity in the mortality curve of the cities and States throughout the world during different periods of time would seem clearly to prove that there is some definite relation of weather to disease. He also stated that, unquestionably, heat and humidity, when prevailing in excess of the normal, are direct causes or factors in the development of disease. Doctor Pierce (23), in discussing the same committee report, thought that climate is an extremely complex subject and that the relationship to the incidence of disease of all the elements of climate, such as the diurnal and seasonal variation of temperature, humidity, altitude, air, light, and static, should be considered.

EFFECTS OF SEASONAL VARIATION IN THE TEMPERATE CLIMATES

In the seasonal variation which takes place in temperate zones the effects of high temperatures encountered might be considered as acute. Every summer, in the cities especially, in different parts of the United States many sudden deaths occur during certain periods when the weather becomes excessively hot (24). During the year 1920, in the registration area of the United States (exclusive of Hawaii) there were 270 deaths reported from the effects of heat (25). Persons affected by the atmospheric heat usually suffer from what is known as heat exhaustion. According to Sir Patrick Manson (26), heat exhaustion is "sunstroke" when due to exposure to direct rays of the sun and "heat stroke" when the patient happens to be under cover at the time. In nine times out of ten this simply means syncope—syncope caused by solar or atmospheric heat, or a combination of these, acting on a body whose resistance has been

impaired by disease, or by trying conditions and unphysiologic manner of living. This form of heat stroke has no geographical distribution and no special morbid anatomy or pathology.

The effects of sudden increases in atmospheric temperature in the temperate latitudes is very interestingly described by Dr. John Huxham in a report of the extremely hot weather experienced at Plymouth, England, during July, 1757, which was published in Philosophical Transactions (27) for that year. He found many people suffering very severely from these excessive heats; putrid, bilious, petechial, nervous fevers were exceedingly common everywhere, and dysenteries, hemorrhages, and most profuse sweats affected not only those in fevers but a large number of others.

In the same volume of philosophical transactions (27) there is an article "On the heat of the weather in Georgia," by H. Ellis, the governor of that State in 1758. He described conditions as follows:

> One can not here sit down to anything that requires much application but with extreme reluctance; for such is the debilitating quality of our violent heats at this season (July) that an inexpressible languor enervates every faculty, and renders even the thought of exercising them painful. * * * Yet but few people die here out of the ordinary course; though indeed one can scarcely call it living, merely to breathe, and trail about a vigorless body; yet such is generally our condition from the middle of June to the middle of September.

Numerous experiments and studies have been made by different investigators as to the effects of meteorological conditions on the different daily activities of people, such as their relation to scholarship of children in school, the incidence of crime, number of deaths, suicides, clerical errors in banks, etc. Dexter, from a study of statistics in New York and Denver as to the effects of such conditions on behavior, concluded (28) that the hot, humid, cloudy wet days, although making us feel out of sorts and likely to be troublesome, show the least number of misdemeanors, owing to the fact that the energy required to carry out the emotion is lacking because of the depleting effect of the weather. Stecher (28), however, in commenting upon the above, said that we should be very cautious about accepting Dexter's conception of the underlying physiological causes, as his theory was sheer assumption resulting from the necessity of interpreting the data.

The effects on people of seasonal variation, as described by Huntington (1), indicate that in the temperate zone there are two periods in which health and efficiency are greatly decreased in comparison with the other seasons of the year and even many deaths result. In the Northern Hemisphere these periods are during the coldest months of the year, January, February, and March, and during the hottest months, from the middle of July to the middle of September, the other months of the year being the most favorable from the stand-

point of health and energy. While the diseases incident to the two periods are different, the net result to health and efficiency is about the same. Farther to the north, however, there is only one unfavorable period, the long extremely cold winter; while farther south the long summer is the unfavorable period, the loss of health and strength due to continued warm weather becoming more pronounced the farther one goes toward the Equator.

EFFECTS OF TROPICAL CLIMATE

Persons accustomed to a temperate climate who go to the Tropics at first may suffer acute effects from the excessive heat and humidity. According to an editorial which appeared in The Lancet (29) in 1916, the European in the Tropics, especially if newly arrived there, is likely to suffer in two ways from the climatic conditions of the hot season—in the one case from heat stroke, in the other from heat exhaustion.

As to the chronic or permanent effects of exposure to tropical conditions, Ellsworth Huntington (30) has made some very interesting assumptions in regard to the relation between civilization and climate. In a discussion of "Environment and Racial Character" he has the following to say:

> Thousands or even tens of thousands of years in the heat of Africa do not seem to have fully acclimatized the Negro to a temperature averaging above 80° F. The same is true among northern races in respect to cold, although they protect themselves by means of clothing, fire, and houses so that they are not really exposed to such low temperatures as might be supposed. All this seems to mean that an adaptation to a climate averaging between 60° and 70° F. is a very primitive trait and presumably belongs to the earliest type of humanity. Therefore we conclude that man probably did not originate in the tropical region extending from Persia or Mesopotamia eastward to southwestern China. This accords with the region from which the most numerous migrations are known to have come. * * * Moreover, these southern migrants would go into a climate less stimulating than that where they became of human form. They would find that great exertion heated them there much more than in their old habitat. Whenever they became thus heated they would unconsciously have a mild and perhaps harmless fever, for the temperature of the body rises under such conditions. The inevitable result is a feeling of lassitude and a tendency to be idle for a long time before making further exertion. In fact, those who were not thus idle would be at a disadvantage, for they would give themselves so much fever that probably their health would suffer and in the course of hundreds of generations their type would be eliminated.

EFFECTS OF COLD CLIMATE

The literature in regard to the action of cold on animals is very meager. Extreme cold seems to be better borne by the human organism than extreme heat. This may be partly due to the fact that the effects of cold can be mitigated by artificial control and, therefore, people are not really exposed to its rigors, even though

living comparatively near the poles. The wonderful adaptability of the human body to different climatic conditions is well illustrated by the rapidity with which explorers become inured to the extreme cold in the polar regions. Hartwig (31), in his book on "The Polar World," published in 1869, mentions the "mysterious compensations" by which Kane and Belcher were able to stand the "lowest temperatures ever felt by man."

During their stay through the first Antarctic night Doctor Cook and his companions found (32) that with temperatures ranging from $-34°$ to $-37°$ with a strong wind it was impossible to exist outside the ship, as the extremities were frozen so quickly that it was positively dangerous to be out. But they also found that in still weather no temperature was too low to prevent outdoor work.

In the report of Scott's last Antarctic expedition (33) an account is given of the loss of one of the members of the party in a blizzard at $-25°$ to $-28°$, with the wind blowing around 40 to 45 miles per hour. Scott had on comparatively light clothing and was out in this temperature wandering around in the Antarctic night for six hours. The only ill effects suffered by him were a badly frostbitten hand, less serious frostbites on the face, and considerable mental confusion when first found by the searching party. The report stated that there can be no doubt that in a blizzard a man has not only to safeguard the circulation in his limbs but must struggle with a sluggishness of brain and an absence of reasoning power which is far more likely to undo him. These Antarctic explorers found $-25°$ under some conditions to be quite mild, as the sensation of cold did not conform to the thermometer, depending rather on the wind, the humidity of the air, and the ice crystals floating in it.

Henry Arctowski made the following statement (32) in regard to the physiological effects of living in the polar regions:

Some further points must be referred to in describing the climatic conditions we experienced. The temperature of the air is doubtless the most important element in the study of climate; but it seems to me that its importance is relatively less in polar regions than in other parts of the globe. In polar latitudes the human organism is chiefly influenced by the absence of the sun during the night of winter. In the summer, on the other hand, the radiant heat of the sun is so strongly concentrated that the temperature of the air scarcely measures the warmth we feel. Further, the action of the solar rays is directly beneficial—the sun strenghtens and reanimates. And besides direct insolation, the diffused daylight itself must be considered. One feels quite different under a cloudless vault and under a sky overcast and somber. The presence or absence of the sun is a much more important matter to us than the state of the thermometer.

The wind is another extremely important factor from the physiological point of view. In calm weather a temperature of $-20°$ C. ($-4°$ F.) is quite tolerable, even agreeable if the sun is shining; but with a light breeze one feels the cold at once, and in strong wind it is impossible to remain long in the open air with so low a temperature. It appears to me that humidity plays a quite secondary

part in the physiology of the polar climate—at least, at low temperatures; in any case, the humidity of the atmosphere rarely makes itself felt.

The last statement above in regard to the unimportance of humidity at low temperatures is corroborated by the experiments conducted by the Public Health Service in cooperation with the Bureau of Mines and the American Society of Heating and Ventilating Engineers in which it was found (34) that for subjects working at a rate of 90,000 foot-pounds per hour, when thinly clad, a temperature of 43° F. was too cold with and without air movement, regardless of humidity.

PERSONAL REACTION—SEX AND AGE

The relation of sex to susceptibility to abnormal atmospheric conditions seems not to have been given much consideration, although statements are frequently made that women react more readily than men to variations in temperature, humidity, and other changes in the surrounding air. Observations made of operatives in cotton weaving sheds (35) would seem to indicate that women are more likely than men to suffer ill effects from the unhealthful conditions prevailing in this work with air temperatures of 100.1° F. and over and relative humidity of 71.1 per cent. The disproportion of raised mouth temperature between male and female was the most striking fact elicited in the course of the inquiry. At the end of the day's work the weavers complained of having no energy, no great desire for food, and needed only drink and rest. Owing to less power of accommodation and less loss of heat due to clothing worn, the women were affected more than the men.

In a study of the effect of changes in the weather on factory workers, Huntington (24) found, from curves illustrating the data obtained on 120 men at Bridgeport in 1910 and 1911, on 180 men at New Britian in 1911, 1912, and 1913, on 196 girls at New Britain in 1911, 1912, and 1913, and on 60 girls at New Haven in 1913 and 1914, that higher wages were made on days succeeding a change in temperature than when there was no change for several successive days, but the curve for the girls varied more than that for the men.

What little material there is in regard to the effect of atmospheric conditions in relation to the age of those exposed seems to indicate that the heat regulating mechanism of young people and of old people is not able to operate so rapidly and successfully in adapting the body to severe changes in temperature.

Eröss (36) made a study of 297 infants to determine the practical use of artificial heat in rearing them, especially the sick and delicate ones. The experiments were carried out on healthy, well-developed infants and on weaker, premature, and atrophic infants. He found, in the case of healthy infants, that the increase in body temperature

was not so remarkable with the older and more developed infants as it was with the younger, although in some instances the surrounding temperature was higher in the case of the older ones, the increase being around 0.1° C., while with the younger the increase was 1.0° C. Results of these experiments indicate that the conditions for the conduction of heat with infants are much more favorable than with adults and that by this means the absorption as well as the giving off of heat is considerably influenced. The strongly developed and fairly well-developed children showed greater capacity for conduction of heat, and hyperemia and perspiration of the skin appeared especially in the well-developed infants, while this happened less frequently and in a decidedly less degree in the case of the premature children.

As stated previously, the information in regard to the effects due to cold is limited, and is especially so in relation to age. However, from the experience of the men in Scott's last expedition (33), the men around 26 and younger did not stand the conditions as well as older men; between 30 and 40 seemed to be the best "all around" age.

INDUSTRIES

There are numerous occupations involving exposure to extremes of heat and cold, dampness, and sudden changes. About 300 of these are listed in a table prepared by Doctor Robertson, of the Division of Industrial Hygiene of the Commonwealth of Australia (37). Among the more common are artificial-ice makers, brick makers, caisson workers, cement workers, coke-oven workers, cold-storage plant workers, dry cleaners, dye makers, electroplaters, foundry workers, furnace workers, glass makers, hothouse workers, ice-cream makers, illuminating-gas workers, iron and steel workers, laundry workers, match-factory workers, miners, packing-house employees, petroleum refiners, pottery workers, sailors, smelters, soap makers, tannery workers, telephone linemen, vulcanizers, wall-paper printers, and welders.

Bodily Reactions to Abnormal Atmospheric Conditions

HEAT-REGULATING MECHANISM

The source or cause of animal heat was an unsolved mystery to the ancients. From observation they were aware that there was within their bodies some source of heat and some mechanism to regulate the production and loss of heat, since in the heat of summer and the cold of winter their temperatures remained fairly constant. According to Schäfer (38) their knowldege of this fact was imperfect, they had no thermometers and could only judge from their sensations, and observations dependent upon the sensations of heat and cold are necessarily imperfect and often fallacious. The ancients

considered animal heat to be beyond the reach of physical and chemical laws. They could assign no cause for it, and therefore looked upon it as some innate quality, something essentially "vital." This "vital" heat was supposed to be concentrated in the heart (Plato, Aristotle, Galen), and to be distributed to the body by the blood in the veins. It was prevented from accumulating by respiration, the chief function of which was to cool and temper the blood.

Lefèvre, in his extensive work on animal and bioenergetic heat (39), refers to the ideas of the ancients as follows:

> In fact, from antiquity, the doctrine of *innate heat* has been accepted; but while some, with Aristotle, would have it that heat appertained to the right heart, others, with Galen, thought that it was developed in the left ventricle. No one, otherwise, yet occupied himself with the cause of this calorification.

Lefèvre (39) considered that the history of animal heat followed an evolution parallel to that of general scientific knowledge, and that up to the time of Lavoisier the most absolute empiricism reigned on this subject. A scientific attitude toward the subject developed with the addition, from time to time, of knowledge contributed by scientists like Lavoisier (3) and Crawford (40), who showed that the heat of an animal might be accounted for by the processes of combustion; of Dulong (41) and Desprez (42), whose results, when critically examined and explained by Liebig (43), formed an important support for the law of the conservation of energy; of Helmholz, Ludwig, Pflüger, and others (38), who, by their investigations upon the production of heat in muscle, glands, and other tissues and their determinations of the respiratory exchange of animals, have indicated where and how heat is produced; and, finally, of Rubner (44), whose exact determinations upon heat production and metabolism have proved that the sole cause of animal heat is a chemical process, a combustion of food substances by the oxygen taken in by the animal.

LIMITATIONS OF HEAT-REGULATING MECHANISM OF THE BODY

With the invention, about 1600, of the thermometer more exact data upon the temperature of animals could be obtained and it became possible to carry out experiments to determine the point at which the heat-regulating mechanism of the body ceases to function in contact with heat or cold in excess of usual body temperature. Most of the experimental study seems to have been devoted to the physiological effects of high temperatures, very little having been done on the effects of cold. This is probably due to the fact that there are very few industries which require exposure to excessive cold and that methods of protection from atmospheric cold are well developed.

According to Sir Patrick Manson (26), the healthy human body, when untrammeled by unsuitable clothing, when not exhausted by fatigue or excesses, when not clogged by surfeit of food, by alcoholic

drinks, or by drugs, can support with impunity very high temperatures. When, however, the physiological activities have become impaired by disease, by excesses of any kind, by fatigue, or by living in overcrowded rooms, or by a combination of some of these, then high atmospheric temperatures are badly supported, the enervation of the heart may fail, and syncope may ensue.

Dr. William Cullen (45), who was a lecturer in medicine and chemistry at the University of Glasgow about 1775, suggested many arguments to show that life itself had a power of generating heat independent of any common chemical or mechanical means; before his time the received opinions were that the heat of animals arose either from friction or fermentation.

The Philosophical Transactions for the year 1775 (45) describe a series of experiments and observations made in a heated room by Dr. George Fordyce, who with others observed the effects of air heated to a much higher degree than it was formerly thought that any living creature could bear, and convinced them by their own experience of the wonderful power with which the animal body is endued of resisting a heat vastly greater than its own temperature. According to this article Doctor Fordyce had proved the mistake of Doctor Boerhaave and most other authors by supporting many times very high degrees of heat in the course of a long train of important experiments.

In the experiments mentioned above, different persons, sometimes several at a time, remained for a number of minutes in rooms heated to as high as 211° without any symptoms excepting that the air felt unpleasantly hot; their most uneasy feeling was a sense of scorching on the face and legs, which were bare. When the heat of the air began to approach the highest degree which the apparatus was capable of producing, their bodies in the room prevented it from rising any higher; and when it had been previously raised above that point, they inevitably sunk it. The results of these experiments were given as follows:

These experiments therefore prove, in the clearest manner, that the body has a power of destroying heat. To speak justly on this subject, it must be called a power of destroying a certain degree of heat communicated with a certain quickness. Therefore, in estimating the heat which we are capable of resisting, it is necessary to take into consideration not only what degree of heat would be communicated to our bodies, if they possessed no resisting power, by the heated body, before the equilibrium of heat was effected; but also what time the heat would take in passing from the heated body into our bodies. In consequence of this compound limitation of our resisting power, we bear very different degrees of heat in different mediums. The same person who felt no inconvenience from air heated to 211° could not bear quicksilver at 120°, and could just bear rectified spirit of wine at 130°; that is, quicksilver heated to 120° furnished, in a given time, more heat for the living powers to destroy, than spirits heated to 130°, or air to 211°.

* * * As animals can destroy only a certain quantity of heat in a given time, so the time they can continue the full exertion of this destroying power seems to be also limited; which may be one reason why we can bear for a certain time, and much longer than can be necessary to fully heat the cuticle, a degree of heat which will at length prove intolerable. Probably both the power of destroying heat, and the time for which it can be exerted, may be increased, like most other faculties of the body, by frequent exercise.

In some "Further Experiments and Observations in a Heated Room," carried out in April of the same year by nearly the same personnel as were the above-mentioned experiments, heat from 240° to 261° or 262° was entered. They found that the air felt very hot, but still by no means to such a degree as to give pain; on the contrary, Doctor Blagden had no doubt of being able to support a much greater heat; and all the gentlemen present, who went into the room, were of the same opinion. However, after seven minutes, Doctor Blagden began to feel an oppression in his lungs, attended with a feeling of anxiety which gradually increasing for the space of a minute, led him to think it most prudent to put an end to the experiment, and he immediately left the room. His pulse, which he was unable to examine in the room, was counted as soon as he got into the cool air and found to be 144 per minute.

Experiments by Doctor Dobson (45) showed that air temperatures up to 224° could be borne for from 10 to 20 minutes by different persons without a great rise in body temperature. His conclusions were that the human body keeps nearly its own temperature in a stove heated to 224°, or may even pass without injury into air heated to a much greater degree.

In 1842 Claude Bernard (46) began experiments to determine the mechanism of death under the action of heat. These experiments were not written up until 1878, when he published the results of later studies. The first result he observed from his experiments was that animals can not live indefinitely in a temperature higher than that of their body. They all die but not in the same length of time; in general the larger the mass of the animal, the quicker the death. On the other hand, the class of animal has an influence; birds are more sensitive to the toxic influence of heat than are mammalia.

OTHER FACTORS MODIFYING THE ACTION OF VARIOUS TEMPERATURES ON THE BODY

The effects of abnormal air temperatures on the human body are modified by other factors, such as humidity, air motion, exercise, physical condition of persons exposed, food eaten, clothing worn, and individual idiosyncrasy.

HUMIDITY

The fact that much higher temperatures can be borne when the air is dry than when it is humid is, of course, common knowledge. Fordyce (45), in 1775, assigned two reasons for this—that dry air does not communicate its heat like air saturated with moisture, and that the evaporation from the body, which takes place when the air is dry, assists its living powers in producing cold. Bernard (46) found that in humid temperature death follows in a much shorter time and at a lower temperature than in dry air, provided that the temperature is higher than that of the body of the animal. However, he claimed that death results because the animal is in the physical condition most favorable for heating, but not from the fact of evaporation from the surface of the body.

In regard to the effects of heat on workmen in sugar refineries in the summer of 1892, Coplin, Bevan, and Sommer (47) found that the humidity seemed to be a most important factor. The great majority of the cases occurred in the boiler room, the air of which contained escaped steam, and in the "mixer," where the raw sugar was emptied into the melting reservoir, over which the men worked and where there was constantly present a large quantity of aqueous vapor. From the temperature records it would appear that temperatures of several degrees higher can be borne if the atmosphere is dry than if it is moist. In the boiler house the temperature varied from 120° to 124° F. with no great percentage of cases, while on the machine floor, with temperatures between 112° and 120° F., averaging 115° to 117°, with a high degree of humidity, 60 cases developed.

From some observations on the influence of high air temperatures, made in the Levant mine by Doctor Haldane in 1905 (48), it was found that in saturated air at about 80° to 93° F. the men accustomed to the mine appeared to bear the heat well and did not suffer in health, although they could do only a limited amount of work. However, visitors to the bottom parts of the mine were greatly affected by the heat. In the Dolcoath mine the subject of the experiments was unable to maintain a normal body temperature in still and saturated air at 94°, and a second experiment, at an air temperature which remained at 89° by both wet and dry bulb, was made in the same level. From this experiment it appeared that 89° F. in motionless and saturated air was slightly above the limit at which a normal regulation of body temperature occurred. A state of equilibrium was not reached, as the body temperature was still rising after two and three-quarters hours. The rectal temperature did not show any abnormal increase during rest in still air until the temperature by the wet-bulb thermometer reached about 88° F. (31° C.), provided the subjects were stripped to the waist or clad in light flannel. If, however, the wet-bulb temperature exceeded this temperature by even 1° a very marked

rise in rectal temperature occurred. This was observed in each of the subjects investigated, and took place whether the air temperature was the same as the wet-bulb temperature, or 50° F. (28° C.) above it, or only 10° F. above it. It was also remarkable that the rectal temperature continued to rise, hour after hour, instead of becoming steady after a short time, as might have been expected.

Le Neve Foster, according to Young (49), observed that in still and saturated air it is hardly possible for men to do continuous work above 90° or 95° F., even when stripped to the waist. At high temperatures in saturated air the amount of work becomes less and less, though men accustomed to the heat can bear it better than others. At above 90° F. it becomes difficult to remain even without working. At 93° F. in still saturated air, although stripped to the waist and doing no work, the temperature rose 5° in two hours and was still rising rapidly when it was found necessary to come out.

Pembrey and Collis, in Appendix III of the Second Report of the Departmental Committee on Humidity and Ventilation in Cotton Weaving Sheds (35), stated that the exact temperature of wet bulb causing undue stress depends on duration and amount of work done and probably varies in individuals as some become inured to warm moist atmospheres, but that the powers of accommodation of all workers must be taxed when the wet bulb rises above 70° F.

In some studies made in the coal mines of the Saar district and Upper Silesia (50) it was found that, while subjective and objective sicknesses could not be determined and the capacity for work was not lowered, the total incapacity of the workers in coal mines, where the humidity is greater than in other mines, begins at 45 years of age, nine years earlier than with other miners.

Cadman (51) made some investigations on the effect of temperature in the mines of Great Britain. He felt quite comfortable at a temperature of 83° F. dry bulb and 66° F. wet bulb, and the men worked with shirts and vests on; but at 86° F. dry bulb and 86° wet bulb Cadman was unable to exert himself much and the men appeared to be doing little work. He concluded from his observations that the capacity of a man for work becomes seriously impaired when the wet bulb temperature exceeds 82° F., although this figure may be exceeded if a strong breeze is made to blow over the exposed skin surface of the miner, but 85° F. wet bulb may be taken as the limit. At 72° F. wet bulb, inconvenience is experienced, unless heavy clothing is removed and only light clothing is worn.

Many cases of heat prostration have occurred on board the vessels of the United States Navy, as reported by Surg. Charles N. Fiske. He reviewed the reports of the surgeons attached to the different vessels in a paper published in the Transactions of the Fifteenth International Congress on Hygiene and Demography in 1913 (52).

He stated that, on the U. S. S. *Texas*, the surgeon reported steering engine room temperatures of 110° to 115° F., and humidity so great that there was no evaporation from the body, and those of the crew who were stationed there at sea were exhausted at the end of two hours.

Higgins (53) found, in 1914, in the Comstock mines of Nevada, that at wet-bulb temperatures of from 80° to 90° F., relative humidity 100 per cent, the average miner worked only one-half to one-third of his time. In one mine four miners produced the same tonnage of ore as was produced by nine miners in a similar place in the same mine where the temperature was 10° hotter.

In some preliminary studies (54) made in the hot deep metal mines of Montana, Sayers and Harrington found in one of the mines in which the average of about 30 readings, taken at all working faces, gave a wet-bulb temperature of 93.3° F. and a dry bulb of 94.4° F., that the efficiency of the workers, although somewhat difficult to gauge, was certainly much less than 50 per cent of that of similar workers in other mines. For instance, two men at the face of a drift in this mine in still air, with 96° F. dry bulb and 94 per cent relative humidity, muck about 12 tons per shift; whereas in a drift in an adjoining mine, less than 1,000 feet away, in moving air, with 82° F. wet bulb and 92 per cent relative humidity, two men muck 30 tons or over per shift.

The following quotation from an article by Briggs on "Physical work and the human machine" (55) may be of interest in comparison with the finding by Bernard (46) that, in humid heat, death does not result entirely from lack of evaporation:

> The great reduction in efficiency of the human machine which results from a high wet-bulb temperature is accountable, then, in the first place to the difficulty of keeping down the body temperature. I wish to suggest a possible second cause, namely, that the hot, damp air may impair the passage of oxygen from the air in the lungs to the blood. A recent experience lends color to that view. A rescue brigade were exercising with breathing apparatus in a road in the Niddrie colliery. A steam pipe ran along the road; some steam was escaping, bringing the air to saturation point at a temperature of 85° F. After more than an hour's light work a halt was called and the instructor advised the men to take out their mouthpieces and rest. They did so, but very soon slipped them back again, one by one. They preferred to breathe air from the apparatus—which by that time would also be saturated and of at least as high a temperature as the outer atmosphere—rather than fresh air from the road. The air of the apparatus would contain 70 or 80 per cent of oxygen; it would, therefore, be more comfortable to inhale than normal saturated air at this high temperature if there were any difficulty in getting a proper oxygen supply from the latter This seems to be a point calling for investigation.

In the Monthly Weather Review for December, 1920, Leonard Hill (56) stated that wet-bulb temperatures in factories and mines are physiologically much more important than dry-bulb tempera-

tures; also, the vapor-pressure reading is much more important than the relative humidity, and the velocity of movement of the air is most important of all, for on this chiefly depends cooling by convection and evaporation.

In 1916, Bruce (57), considering moisture and temperature in relation to comfort and health, concluded that any attempts to judge conditions by means of the wet bulb alone are certainly misleading; under some conditions a wet-bulb temperature of 82° is far more endurable than one of 75°; and in any case, dew points of 70° and over give rise to most oppressive conditions.

Orenstein and Ireland (58) conducted numerous experiments in the mines of South Africa and found the kata thermometer a very much better way of investigating actual atmospheric conditions in their relation to practical problems than could possibly be obtained with the anemometer or thermometer. They found that when the cooling power of the atmosphere is below 6 units of dry kata and 16 by wet kata, the working efficiency of a native (stripped to the waist) falls off. In bad places where the cooling power is only 1.5 units (dry) and 5 (wet) or under, the average efficiency is only about 55 per cent, the body temperature rises to an undesirable degree and extreme fatigue may be produced by work.

According to Clifford (59), 15 millicalories of wet kata cooling power per square centimeter of wet surface per second may be considered as the lower limit of satisfactory conditions unless no physical work is being done, and 30 millicalories the upper limit of satisfactory conditions; the latter induces a feeling of cold and danger of chill unless the body is well clothed or physical work is being done. The best conditions are experienced at 20 to 25 millicalories, the higher figure necessitating a fair amount of clothing or the performance of physical work. At 5 millicalories the condition is extremely oppressive, inducing profuse perspiration and a severe strain on the heat regulating mechanism.

In a preliminary study made in 1922 by the United States Bureau of Mines to determine the adaptability of the kata thermometer as a measure of the comfort of working places in mines, Harrington and McElroy (60) found the indications to be that the instrument would probably be useful for making routine determinations of comfort conditions in the mines and that it might also prove an important accessory for investigative work on problems in ventilation and kindred subjects in both coal and metal mines, although it should probably be altered somewhat for maximum utility under the varied conditions in the mines of the United States. As in its present form, however, the instrument is awkward, owing to frailness and because it requires an external method of heating the fluid and the use of mixed units such as Fahrenheit scale on the

instrument with the results and formulae expressed in metric units, it seems probable that a similar instrument, but measuring cooling powers at a higher temperature, can be developed for investigating temperatures above the range of the present instrument, and the results obtained by both correlated.

From a further experimental study of the use of the kata thermometer, made by the Bureau of Mines and the United States Public Health Service in cooperation with the American Society of Heating and Ventilating Engineers, McConnell and Yagloglou (61) arrived at the opinion that there is no single index of human comfort in atmospheric conditions and questioned whether any single instrument can be designed that will answer this purpose. While the wet bulb takes account of the temperature, humidity, and air motion, the main difficulty lies in estimating the relative degree of importance to be attached to these various measurements. Their final conclusion was that the kata thermometer stands in need of much more experimentation.

On account of the many factors influencing the heat production and heat loss in man, and the realization that only by a study of the relative importance and correct correlation of these factors could intelligent effort be directed toward preventing their ill effects, an investigation was started some years ago by the United States Public Health Service in cooperation with the Bureau of Mines and the American Society of Heating and Ventilating Engineers. In order to carry out the proposed investigations under carefully controlled conditions, a psychrometric chamber was constructed at the Bureau of Mines experiment station at Pittsburgh, Pa. A description of this chamber by Sayers and McConnell was published in The Nation's Health in 1923 (62).

As the temperature of the air and surrounding objects rises, the loss of heat by convection and radiation decreases. When the temperature reaches that of the body, the loss by radiation and convection ceases. Finally, as the air temperature exceeds that of the body, heat passes from the air to the body. If, on the other hand, the relative humidity is increased, the heat loss by evaporation decreases. If while the dry-bulb temperature increases, the wet-bulb temperature decreases sufficiently, the increase in loss of heat by evaporation may be made equal to the decrease in loss of heat by radiation and convection, resulting in no change in body temperature or comfort. From these premises it was concluded (63) that there must necessarily exist certain combinations of temperatures, humidities, and air motion which will produce the same total body heat loss by radiation, convection, and evaporation, and therefore the same feeling of comfort or discomfort. Any such combinations are equivalent

and have been plotted as curves known as effective temperature curves.

The effect on pulse rate, body temperature, body metabolism, and feeling of comfort or discomfort at various temperatures (100 per cent humidity), with subjects at rest and at moderate work, is shown in the following table (64):

Temperature of air; relative humidity 100 per cent	Effects when at rest				Effects when at moderate work		
	Pulse rate	Body temperature	Metabolism	Remarks	Pulse rate	Body temperature	Remarks
° *F.*							
98	Greatly increased.	Marked increase.	Marked increase.	Very hot, even with little clothing.	Very rapid	Marked increase.	Very hot.
95	Marked increase.	Increased..	Increased..	Hot, even when little clothing worn.	...do......	...do......	Do.
90	Increased..	...do......	...do......	Very warm........	Rapid......	Increased..	Hot.
85	No change	No change	Slight increase.	Warm............	Increased..	Slight increase.	Very warm.
75-80	Slight decrease.	Slight decrease.	Minimum metabolism.	Comfortable......	Slight increase.	...do......	Comfortable or warm.
65-70	Decrease..	...do......	Slight increase.	Slightly cool to comfortable.	...do......	...do......	Comfortable.
55-60	...do......	...do......	...do......	Cool, clothing needed for comfort.	...do......	...do......	Comfortable to cool.
45-50	...do......	...do......	Increased..	......do............	...do......	...do......	Cool.

The following general conclusions summarize the results of this phase of the investigation:

1. Comfort, as determined by both sense and physiological reactions, depends solely upon effective temperature. At 32° the effective-temperature line coincides with the dry-bulb temperature line; hence, in this particular case, dry-bulb temperature is the only factor in determining comfort.
2. In the comfort zone, comfort depends equally upon wet-bulb and dry-bulb temperatures.
3. At about 132° the effective temperature coincides with the wet-bulb temperature, and for this case the wet-bulb temperature is the only factor.
4. Below 32° the effect of humidity is reversed—that is, the lower the humidity the greater the feeling of warmth.

In a study of ventilation problems in the United States Army, Maj. Charles Le Baron, jr., found (65) that the optimum temperature for barracks is in the neighborhood of 56° F., wet bulb, and 70° F., dry bulb, with a relative humidity of about 40 per cent.

AIR MOVEMENT

The effect of moving air in alleviating the discomfort experienced when exposed to atmospheric heat has apparently always been common knowledge. According to the Encyclopaedia Britannica

(66), fans for cooling the face have been in use in hot climates from remote ages. A bas-relief in the British Museum represents Sennacherib (King of Assyria 705–681 B. C.) with female figures carrying feather fans. Examples may be seen in the plates of the Egyptian sculptures at Thebes and other places and also in the ruins of Persepolis. In the Museum of Boulak, near Cairo, a wooden fan handle, showing holes for feathers, is still preserved. Large punkahs, or screens, moved by a servant who does nothing else, are in common use in hot countries, particularly in India. Men and women of every rank, both in China and Japan, carry fans, even artisans using them with one hand while working with the other.

Blagden (67) found that with air heated to about 260° air movement made the heat feel most intense and a blast of the heated air from a pair of bellows was scarcely to be borne.

In a summary of their studies made in metal mines, Sayers and Harrington (68) compared the effects, produced on men, of working at various temperatures with air movement and without air movement. They found that—

Remaining at rest in saturated air at 91½° for one hour,

With no air movement caused—

1. An increase in body temperature;
2. A moderate increase in pulse rate;
3. Profuse sweating;
4. After effects of dizziness and weakness.

With air movement caused—

1. Slight or no increase in body temperature;
2. Slight increase in pulse rate;
3. Slight perspiration;
4. No after effects;
5. No ill effects at any time; but the noise of the fan was annoying.

Remaining at rest in saturated air at 95° for one hour,

With no air movement caused—

1. An increase in body temperature;
2. A marked increase in pulse rate;
3. Very profuse sweating, clothing being saturated with perspiration and sweat in shoes of all subjects;
4. Dizziness on movement, and increase in depth and rate of respiration (puffing somewhat on slight movement); chilly sensations in some subjects.

With air movement (250 to 600 linear feet per minute) caused—

1. Slight or no rise in body temperature;
2. Slight or no rise in pulse rate;
3. Profuse sweating, but not sufficient to wet all clothing;
4. No untoward symptoms in subjects other than profuse sweating.

Remaining at rest in saturated air at 96°, still and moving, caused the subjects to experience symptoms practically the same as those felt in still or moving saturated air, respectively, at 95° F.

Remaining at rest in saturated air at 98½° F. for one hour,

With air movement caused—

1. An increase in body temperature;
2. An increase in pulse rate (in one case to 183);
3. Very profuse sweating, clothing being saturated (sweat could be poured from shoes);
4. Dizziness on movement. All felt that little work could be done at this temperature and that the conditions were much worse than in moving saturated air at 95°, but not as bad as moving saturated air at 100° F.

Remaining at rest in saturated air at 100° F.

With no air movement caused—

1. A marked rise in body temperature, which reached 102.3° F.;
2. A marked rise in pulse rate, varying in different subjects from 152 to more than 175;
3. Profuse sweating, the shoes being partly filled with perspiration;
4. Early appearance of dizziness, weakness, and persistence of symptoms for about one hour after test. The test was very trying.

With air movement (200 to 800 linear feet per minute) caused—All the above symptoms, and no subject remained a full hour.

The untoward effects upon man of almost saturated air with temperature above 90° F. and below 98° F. are much less when the air is moving than when it is still. Further, the output or work that can be done is greater when the air is moving than when it is still, with the above temperature and humidity.

No beneficial effects were found by moving saturated air at 98.6° or 100° F., even at high velocities; and there was apparently some disadvantage.

In continuation of the cooperative investigations carried on with the American Society of Heating and Ventilating Engineers by the Bureau of Mines and the Public Health Service on the effects of different atmospheric conditions with still air, a similar study of the reactions of human beings to air motion was made and the results were reported as follows (69):

It has been pointed out that the experiments conducted in still air indicated that the upper limit of man's ability to compensate for atmospheric conditions lies around 90° F. saturated (90° effective temperature.) Under similar conditions, but with an air velocity of 200 feet per minute, this limit is shifted to about 95° as a result of the cooling effect of the wind.

At 105° with saturated air moving at a velocity of 200 feet per minute, the average rise in body temperature is approximately 1° (or to be exact, 0.95°) higher than in still air.

The physiological reactions resulting from air moving at the rate of 400 feet per minute are much more pronounced, especially at low temperatures. It is significant to note, however, that by doubling the velocity of the air, the physiological reactions do not double in rate of change. As stated above, the rise in body temperature was 0.95° in air moving at 200 feet per minute at a temperature of 105° with a relative humidity of 100 per cent, while under the same conditions, but with the air moving at 400 feet per minute, the rise in body temperature is only 1.3°, the increase of 200 feet in velocity producing only 0.35° additional rise in temperature.

Air motion exerts a cooling effect on the human body in atmospheres where the temperature is less than that of the body; in temperatures above that of the body, air motion increases the discomfort, but the rate of change in reactions can not be doubled by doubling the velocity of the air.

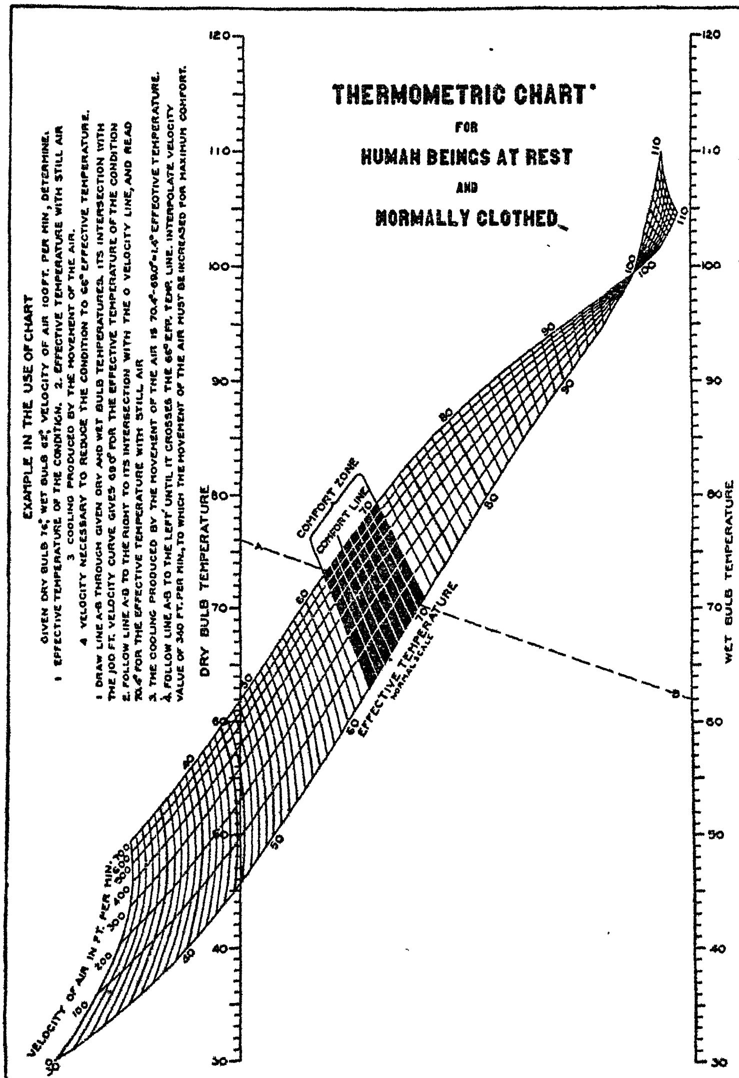

FIG. 1.—Thermometric chart

As a result of the cooperative work mentioned above, charts were prepared showing effective temperatures for different air velocities at different temperatures and humidities, as well as for still air

conditions, for comparative purposes. The accompanying interpretation of one of these charts (fig. 1) is given by the authors (70):

The proximity of any point to the dry and wet bulb temperature axes indicates the superiority of one temperature over the other in determining human comfort. For ordinary temperatures the points are nearer to the dry-bulb temperature axis, while for high temperatures, when sensible evaporation comes into play, the upper part of the diagram approaches the wet bulb axis. A vertical line drawn halfway between the two temperature scales will intersect the various velocity curves at points where dry and wet bulb temperatures are of equal importance. For instance, with still air this occurs at an effective temperature of about 77°, while with a velocity of 500 feet per minute it occurs at a saturated temperature of 86.0° or at an effective temperature of 80.7°.

It will be observed that, in the lower part of the diagram the various velocity lines intersect the dry-bulb axis at temperatures at which the effect of wet bulb, or humidity of the air, is eliminated completely. Below these temperatures the divergence of the velocity lines away from the dry-bulb axis and the change in their curvature indicate a reversal in the effect of humidity; the higher the humidity the cooler the condition, and vice versa.

At high temperatures the velocity curves converge toward each other, until at body temperature they all meet at a common point called the "neutral point" in atmospheric conditions. Above this point the reversal in the order of the velocity curves with reference to the still-air curve shows the heating effect of wind upon the human body, and its increase with velocity. For temperatures higher than 120° dry bulb, but not exceeding 170°, the scale may be extended beyond the limit of the chart and the value determined in the usual manner as long as the effective temperature is below 110°.

Considering next the efficiency of air movement in cooling the human body, it will be noted that low velocities are more efficient than high. The distance between any two consecutive velocity lines is a function of the amount of cooling produced by an increase of 100 feet per minute in the velocity of the air. Therefore above 300 feet per minute the efficiency of air movement falls off considerably, and it will be inefficient in practice to use velocities greater than 300 feet per minute.

In the application of effective temperature to practical problems, where air of high temperature and comparatively low humidity is cooled, and at the same time saturated with moisture by passing it through a humidifier, Figure 1 affords a simple means of studying in detail the cooling that will result from saturation and movement of the air. In problems involving cooling or heating of the air at constant dew point, when a detailed study is contemplated, it will be desirable to introduce in the chart a scale of moisture content of the air. For clearness in reproduction this scale is not shown here, because with the chosen distance between the two vertical axes it falls outside the limits of the chart.

In some experiments made by Flinn (71), with air movement of 224 feet per minute at a temperature of 50° C., the body temperature of dogs showed very little rise the first hour (only 0.4° C.), but by the end of the four-hour exposure it had increased 2.6° C. Flinn concludes that this increase in body temperature in spite of the increased air movement is interesting in view of the fact that so much emphasis has been placed lately on air movement. There appears to him to be no doubt, if the results are interpreted correctly, that air movement must be studied from a viewpoint of evaporation. Air move-

ment may delay the discomfort of the organism exposed to high environmental temperatures by keeping the body cool temporarily because of the increased rate of evaporation, but at the expense of the organism itself by lowering the water reserve.

EFFECT OF ABNORMAL TEMPERATURES AND HUMIDITIES ON WORKING CAPACITY AND ACCIDENT RATE

The optimum temperature of the environment most conducive to human comfort, and at which the body works most efficiently, depends upon the work performed. The greater the muscular activity, the greater the heat produced; therefore to effect the loss of this increased heat, the cooling power of the air must be correspondingly increased.

In studying conditions in the Julia mine of the Comstock Lode, Nevada, in 1880, Raymond (72) found that three men had died on account of the excessive heat, the air temperature being from 108° to 110°, and that some men wilted under the work, and were said to have "no pluck." Unaccustomed men were often unable at first even to reach the end of the drift where they were to work.

In a most interesting monograph (73), published in 1883, Lord called attention to the danger encountered by the miners who were tempted by the silver of the Comstock mines to explore their depths until they dropped dead at the stopes. Death alone had the power to say to miners: "Thus far shall ye go and no farther"! For no endurable suffering would bar their progress; nor would the loss of life even make them pause, unless the scourge of heat struck them down like a pestilence. If power drills had not been in use in the hottest working of the California and Consolidated Virginia mines during the summer of 1878, the work of exploration would probably have come to a close. To penetrate hard rock while breathing such an atmosphere would have taxed human endurance too greatly; even to cut out the decomposed feldspar with light steel picks was a painful labor. At some stopes in the great ore-body four miners could scarcely do the ordinary work of one man in a moderately cool drift; yet no mines were more carefully ventilated than these.

According to Patrizi (74) the raising of the temperature is unfavorable to muscular work in human beings, the normal heat of the blood being the most satisfactory for it. As certain poisons act more readily on heated organisms, it is to be supposed that the toxic power of the products of fatigue are also augmented in the muscles with an increased temperature.

According to the annual report of the Surgeon General of the Navy for 1909 (52), heat exhaustion was less prevalent then than it was two and three years previously, for the reason that the small cruisers with poorly ventilated firerooms had either been withdrawn from tropical service or placed out of commission. It is thought that the

slight amount of physical exertion required to regulate the oil burners, as compared to that used in passing coal, enables the fireroom watch to withstand a greater elevation of temperature.

In this connection it is interesting to note that of 158 cases described by several different authors as suffering from heat exhaustion (75), there were 85 laborers, 12 teamsters, 8 carpenters, 4 firemen, 3 laundry workers, 3 housewives, 3 cooks, and 3 clerks. There were 152 males and 6 females; 116 were in the third fourth, and fifth decades, the majority of them being in the fourth; 102 were foreigners and only 45 were Americans.

In regard to the best temperatures for working efficiency, Vernon (76) concluded from a study of different occupations that probably a temperature of 60° to 65° is the most suitable for ordinary machine work. As this temperature would raise accident frequency only 6 per cent above that at 65° to 69°, it may provisionally be accepted as the practical ideal.

The question as to whether the commonly experienced disinclination to perform muscular work in a hot and humid atmosphere is accompanied by actual diminution of working power was studied by the New York State Commission on Ventilation. Also the effects of various air conditions upon mental work were considered. From this study it was found that even when men were urged to work they accomplished 28 per cent less total work in a day in an atmosphere of 86° F., 80 per cent relative humidity, than at 68° F., 50 per cent relative humidity. When left to themselves but stimulated by a bonus, they performed per man per hour in the four atmospheric conditions of 68° F., fresh air, 68° F., stagnant air, 75° F., fresh air, and 75° F., stagnant air, the decreasing series of 100, 91.1, 85.2, and 76.6 percentages of work. With mental work an individual, when urged to do his best, does as much, and does it as well, and improves as rapidly, in a hot, humid, stale, and stagnant air condition at 86° F., 80 per cent relative humidity, with no air or only recirculated air as under an optimum condition of 68° F., 50 per cent relative humidity, 45 cubic feet per person per minute of outside air introduced (77).

The Industrial Fatigue Board, in a report of an investigation (78) of the effects of external temperatures in two factories, one badly and one well ventilated, made the following comparison of the hourly outputs of an eight-hour shift for a 55-week period. For external temperatures under 40° F. the hourly output was 10 per cent above normal; it fell without interruption for each rise of 5° F. until for external temperatures of 65° and over it was 10 per cent below normal. A seasonal fluctuation of output from 9 per cent below normal in August to 9 per cent above normal in January was noticed. In a factory with good ventilation the limits of variation were from 3 per

cent above to 3 per cent below normal. On the very hottest days the variation was probably as much as 30 per cent below the output of the coldest days in the ill-ventilated factory.

In the studies carried out by the Bureau of Mines and the Public Health Service in cooperation with the American Society of Heating and Ventilating Engineers, it was observed (79) that the subjects were capable of performing four times more work in a temperature of 100° with a relative humidity of 30 per cent than in a saturated condition of 100°. For the ordinary humidity of 60 per cent the subjects performed about five times more work in a temperature of 90° than in one of 120°. The rate at which the output decreases with increase in the external temperature is practically the same for all three humidities at the higher temperatures; and in the light of the experimental results, the upper limit in atmospheric conditions at which work can be performed efficiently corresponds to a dry-bulb temperature of 100° and a relative humidity of 30 per cent. As an indication of the effect of air movement upon the ability of individuals to perform work in comparatively high temperatures, it was observed that an air movement of 350 feet per minute, 60 per cent relative humidity, increased the output from 70 per cent at 90° dry bulb to 55 per cent at 110°, when the work was based on equal increase in the pulse rate, and from 26 per cent at 90° to 20 per cent at 110° when based upon equal rise in rectal temperature. In so far as the pulse rate is a better index of bodily reactions, the first estimate represents more nearly the actual benefit derived from the movement of the air. A conservative estimate may be arrived at by taking the average of the two values—namely, an increase in the output of from 50 per cent at 90° dry-bulb temperature to 40 per cent at 110°. Above 110° dry bulb the effect of air movement is rather small, because the effective temperature approaches the temperature of the body.

In tests (34) conducted in atmospheres of low temperature in still and moving air, it was found that during work at a given rate of 90,000 foot-pounds per hour, with intermittent rest periods, a temperature of 43° F., with the subjects thinly clad, was pronounced as too cold with and without air movement, regardless of humidity. On the other hand, conditions above 85° F. were found to be too warm for comfort, regardless of humidity if the air were still; but with air moving at 350 linear feet a minute, a temperature of 85° F. was found to be comfortable, even with 100 per cent relative humidity.

In connection with the above investigations, observations were made regarding the extent to which clothing decreases the cooling power of the air in such temperatures as are frequently met with in actual practice. At the ordinary dry-bulb temperature of 70°, a velocity of 300 feet per minute produces a cooling effect of about 5°

on the human body when clothed, and 10.5° when stripped to the waist. Therefore, clothing under these conditions reduces the cooling effect by 52 per cent. Approximately the same percentage reduction holds true for velocities higher than 300 feet. For lower velocities the decrease in cooling effect due to clothing is still greater. For example, with a velocity of 100 feet per minute, at 70° F., the corresponding decrease in cooling is 66 per cent. As the temperature of the air increases, the percentage reduction in cooling decreases slightly, varying from a maximum of 50 per cent to a minimum of 40 per cent.

In general, it can be stated that normal clothing at ordinary humidity halves the cooling effect of wind as compared with that obtained when only light work trousers, socks, and shoes are worn. The importance of stripping to the waist is therefore apparent when high cooling power of the air is desired, provided that the temperature conditions do not exceed certain prescribed limits. On the other hand, clothing in a number of instances is advantageous in increasing loss of heat by evaporation and decreasing heat gain by radiation and convection. This is particularly true when very high dry-bulb temperatures are accompanied by humidities below 20 per cent, and when the wet-bulb temperature is well below 99°. In fact, man is capable in such cases of increasing evaporation materially by suitable clothing. An elastic cotton union suit which will cover tightly as much of the body's surface as possible constitutes an ideal outfit for exposure to dry, hot atmospheres. The excessive perspiration, most of which runs down and off the body in the case of a man stripped to the waist, and thus is rendered unavailable for evaporation, is absorbed by the cotton garment and distributed uniformly over the entire surface by capillary action. This method of exposure eliminates the burning effect upon the areas of the body which otherwise become dry, while other parts of the body's surface are cooled adequately by the evaporation of abundant perspiration.

The effects of exposure to low temperatures are qualified by clothing worn and by exercise. As stated above (79), normal clothing at ordinary humidity halves the cooling effect of wind as compared with that obtained with the subject stripped to the waist. It is too well known to need verification that, due to increased heat production, the greater the exercise, the lower the temperature that can be borne. According to the experience of the Antarctic explorers, as recorded by Doctor Cook (32), no temperature was too low to prevent outside work as long as the air was still.

At rest in still air with a temperature of 65° to 70° and with 100 per cent relative humidity, subjects stripped to the waist felt from "slightly cool" to "comfortable"; under these same conditions with

moderately hard work, they felt "comfortable." At rest in still air with temperatures from 55° to 60°, 100 per cent relative humidity, clothing was required for comfort, while at moderately hard work under these conditions the subjects were "comfortable" to "cool" stripped to the waist, and at 45° to 50° subjects working moderately hard felt cool stripped to the waist (64).

The high and low extremes of temperature at which death takes place vary according to individual idiosyncrasy and also according to whether the heat or cold is dry or moist. Exposure of a rabbit for 55 minutes to moist air at 101.66° F. raised its body temperature to 109.4° F. (38). The ordinary human being can exist for only a few hours in a temperature of 110° F. and 100 per cent relative humidity (80). No direct statement was found in the literature as to the air conditions and the length of exposure required to raise the body temperature to the fatal point. In experimenting to determine the temperature at which death takes place by refrigeration, Lefèvre (39) found that a rabbit died when the rectal temperature had fallen to between 60° and 65° F. The rectal temperature of 60° F. was reached after exposure of the rabbit to a bath of 50° F. for 61 minutes. Schäfer (38) mentioned cases in which exposure to cold, especially of drunken persons, had reduced the body temperature to 75° F. Although unconscious when found, the victims recovered. In other cases, with body temperatures (rectal) of 83°, 80.6°, and 79.5° F. death followed in about 24 hours. Storm Van Leewuen (81) showed that cooling tends to reduce the reflex irritability of the spinal cord. This reduction becomes very marked at a body temperature of 78.8° F.; which may explain why this temperature approximates the lowest compatible with life.

According to Hope (78), accidents in factories show a seasonal fluctuation similar to that shown in percentage of output, as they are more frequent in summer and under bad conditions of ventilation than in winter and under good conditions of ventilation. An exception occurs, however, in very cold weather if the temperature falls too low, more accidents occurring from slipping of tools, etc., if the hands become too cold. He mentioned that in a fuse factory the accidents were at a minimum at temperatures between 60° and 69° F. Above these temperatures there was a slight and progressive increase with rise of temperature, but with lower temperatures there was a well-marked increase, so that, in the case of women, there were two and a half times as many accidents when the external temperature was at or below freezing than when it was 47° F. or over, and the accidents among the men were twice as numerous. This result is largely due to the numbing effect of cold on the hands, especially when cold metal tools have to be held in them; but there is also a numbing effect on the brain.

From data collected in two munitions factories and a projectile factory on industrial accidents in relation to temperature, Vernon (76) observed that in both men and women the minimum accident frequency was at 65° to 69°. At lower temperatures it gradually increased to a similar extent in men and women, till at 50° to 54° it was 35 per cent greater than at 65° to 69°. At temperatures below 49° the frequency fell off slightly. This fall may have been due to the fact that the workers were too cold to keep up their usual rate of production. In such a case they would expose themselves to less risk of accident. At temperatures above 65° to 69° the accident frequency showed only a slight rise in the women, but in the men it increased rapidly; and at temperatures above 75° it was 39 per cent greater than at 65° to 69°. Probably this difference was due to the fact that the work of the men was often of a heavier character than that of the women, and the greater the exertion required the more trying must be the effect of exposure to high temperatures.

One of the most striking results of the installation of a cooling plant in the Morro Velho Mine (82) was the fall in the accident rate. In the 16 months (August, 1919, to November, 1920, inclusive) previous to the starting up of the plant there occurred 20 deaths through underground accidents and 4 cases of disablement, the total liability for compensation involved in connection with these accidents being 80,675 milreis. In the following 16 months (December, 1920, to March, 1922, inclusive) there were six fatal accidents underground and four cases of disablement, the amount of compensation involved being 35,820 milreis.

Raymond (72) was of the opinion that sometimes accidental deaths might be the indirect result of the faintness caused by the effect of the heat on the circulation, giving as an example the case of a man who fell down an upcast shaft, probably because he was overcome by the heat while putting in timbers.

While the deleterious physiological effects of increased moisture and temperature are of themselves sufficient argument for improvement of such conditions, there are many other points that must be considered (83). According to Lauder Brunton (84), one of the most important conditions influencing both chemical and pharmacological reactions is temperature.

Reed (83) considered that a moderate increase of temperature—within physiological limits—would augment the action of drugs, whether harmful or not.

In a study on the effects of exposure to low concentrations of carbon monoxide, Sayers and his coworkers (85) found that high temperature and humidity, with a given concentration of carbon monoxide, caused more rapid combination of carbon monoxide with hemoglobin than did normal conditions of temperature and humidity,

Murray (86) found, during his investigation of the mining of lead in Utah, conducted over a number of years, that heat and humidity may also predispose to lead poisoning, as the men work with little clothing and even stripped to the waist. In such cases a large part of the body surface is exposed to lead-laden dust. Men working under the conditions cited are usually perspiring profusely, which exposes them to possible absorption of soluble salts of lead through the skin. Then, too, unless care is exercised in bathing after each shift lead dust accumulated on the body becomes dry and further exposure to inhaled and ingested lead dust is afforded in changing clothes and in sleeping quarters.

Physiological Action of Abnormal Temperatures and Humidities

HIGH TEMPERATURES

The results of exposure to high atmospheric temperatures and humidities may be considered as acute and chronic. The acute condition is referred to as sunstroke when it results from exposure to the direct rays of the sun and heat stroke or heat exhaustion when the heat is from some other source or only indirectly due to the sun. In the case of heat stroke, the temperature of the body rises and there are signs of congestion and nervous irritation; in heat exhaustion, there are pallor, fainting, and collapse. Heat stroke is the commoner form. Although sometimes caused by the direct rays of the sun, it is much more frequently produced by the combination of high temperature and excessive moisture in a confined space (87).

According to Fiske (52) the etiology and incipiency of heat exhaustion need not be at variance with those of sunstroke, except in intensity; the assumption is tenable that in sunstroke the factors are so fulminating and of such an overwhelming character that heat production and loss are promptly deranged, whereas the symptoms of heat exhaustion represent the sustaining and finally failing efforts upon the part of the human body to overcome its adverse environment.

SUBJECTIVE SYMPTOMS

Doctor Coplin, who in 1892 was requested by the management of a sugar refinery to attend professionally the workmen therein who were suffering from the high temperatures, aggravated by the extreme heat outside, reported (47) that the most constant symptom and the one of which the patients complained most was "cramp," usually referred to the region immediately below the ensiform appendix, not infrequently associated with similar pains in the calves of the legs, occasionally in the back, sometimes also in the hypogastrium, less commonly in the thighs and upper extremities. There was also difficulty of respiration and a feeling as of a weight on the chest. Occa-

sionally there was pain in the splenic or hepatic region and in nearly all cases sharp and throbbing headache, temporal or supra-orbital, rarely occipital. In some cases nausea was present, but vomiting rarely occurred. In a few cases diarrhea was present, but in the majority constipation preceded the attack. As a rule the patients felt cool, not infrequently chilly, when brought out of the intense heat. In a number of cases in which the temperature ranged about 105° F. a blanket felt comfortable. Consciousness began to waver at 106° F., the patients felt sick at the stomach and attempted to vomit. There was a feeling of fatigue. The desire to urinate was constant, although often no urine was voided. Great thirst was experienced. Removal from the extreme heat was often followed by a gradual return of the temperature to the normal, and only weakness, entirely disproportionate to the other symptoms, remained.

Dizziness, physical weakness, or exhaustion to a marked degree, inability to think quickly or accurately, and nausea and headache were observed by Sayers and Harrington (54) in still air in metal mines, with a wet-bulb temperature over 90° F. and under 100° F., and with a relative humidity of 89 per cent or higher, even when little or no exercise was taken.

According to Johnson's experience (75) the onset of heat exhaustion is almost always sudden, but frequently there are prodromal symptoms for a few hours or a few days before an attack. These consist in general depression, headache, malaise, dizziness, anorexia, nausea and vomiting, diarrhea, epigastric distress, restlessness, insomnia, and great thirst (polydipsia). Convulsions may be present and the temperature may be normal, subnormal, or greatly elevated.

Watkins claimed (88) that the ill effects of disturbance of heat equilibrium do not become manifest solely in acute illness, such as heat stroke or heat exhaustion, but also in chronic affections, such as diminished resistance to fatigue and disease and lowered physical efficiency. Workers exposed to heat hazard eventually drop out because of decreased working powers, poor health, or some degenerative disease for which predisposition has been created by reason of the working conditions. The effects of long-continued exposure to this hazard are slow and insidious and are evidenced in degenerative changes, such as arthritic and muscular rheumatism, chronic skin disorders, and arteriosclerosis. In addition, long-continued exposure to excessive heat will gradually but surely lower the general physical tone, even if no disease conditions become evident.

The acute manifestations of exposure to excessive heat, as given by Kober and Hayhurst (89), are colic, concentrated urine, and muscular cramps, which symptoms are more or less influenced by toxins generated within the body; cases of "colds"; and anemia and general debility are also quite common in this class of workers. Any

abrupt change in temperature is likely to cause congestion of internal organs; hence the undue frequency of catarrhal, neuralgic, and rheumatic affections among imprudent workers. These congestions not infrequently also result in gastrointestinal and vesical catarrh, and pave the way for pneumonia, pleurisy, and Bright's disease. Nervous affections, such as headache, dizziness, and general irritability, are also observed.

In the studies by the Bureau of Mines and the Public Health Service, in cooperation with the American Society of Heating and Ventilating Engineers (90), the subjects who frequently on entering the chamber were in a happy mood and of a joking disposition soon became restless and irritable. They complained of headache and palpitation of the heart. The headache soon became throbbing in nature, and the palpitation distressing. Great thirst was experienced. The eyes became inflamed and sore. A feeling as of a weight on the chest was noticed. The voice suffered somewhat in that it became an effort to speak. Dizziness and confusion followed. After leaving the chamber it was necessary to sit down and rest for 5 or 10 minutes before taking a shower. Weakness and a "dragged out" feeling continued for some time, depending upon the severity of the test. A metallic taste was a noticeable symptom, and persisted for one or two hours following the high temperature experiments.

OBJECTIVE SYMPTOMS

Bernard (46) found in his animal experiments that exposure to the "toxic effects of heat" produced a series of constant and characteristic symptoms. The animal was at first slightly agitated, soon the respiration and circulation were accelerated, the animal opened its mouth and panted, and it soon became impossible to count the respiratory movements; finally it fell in convulsions and died, more often suddenly, uttering cries. If the temperature was elevated enough, death followed so suddenly that the animal seemed struck by lightning.

Coplin (47) observed the following objective symptoms in patients suffering from the effects of exposure to high temperatures: Agitation, jerky muscular movements, skin pale, usually cold and clammy with the temperature below 102° or 103° F., surface temperature rarely high, in a fatal case the axilla temperature being only 105° while the rectal was 108°; sluggish response of pupils to light, but not in accommodation, eyes vacantly fixed, lids moving slowly and infrequently; the voice often sepulchral. This condition passes into delirium, occasionally active and sometimes fierce and uncontrollable, during which convulsive movements may occur, usually in the extremities but later may involve the muscles of the trunk, more particularly those of the back, and occasionally those of the respira-

tion, giving rise to interference with breathing and to cyanosis. The patient swallows with difficulty if at all. Speech is jerky, skin and lips are pale, conjunctiva brilliant, ears cold, finger nails blue or of an ashen whiteness. The cardiac impulse is diffused as though the ventricles were distended and the organ laboring. The pulse is "floody," a term coined to express the condition; to the finger it is like a sudden flood of blood coursing in the channel of the vessel and disappearing upon the slightest pressure. Irregularity in the pulse and in the cardiac rhythm is a constant feature. Ordinarily there is no increase in the intensity of the heart's sounds, certainly no accentuation. The urine is scanty and high-colored, and when the pyrexia becomes excessive, albumin may be present temporarily in small quantities.

The objective symptoms observed by Sayers and Harrington (54) were a rise in body temperature, in one case reaching 102° F. after less than two hours spent in hot, humid air; an increase in pulse rate, which seemed more sensitive to exercise than normally; very profuse perspiration; loss of weight, especially marked in men who had been employed under conditions of high temperatures and humidities over a period of years but occurring even after exposure only for a few days.

Johnson (75) considered that the physical findings depended upon the degree of trauma, a patient suffering from collapse, without a tremendous initial rise of temperature, greatly resembling a person in a state of shock. He quoted Edsall as saying that the spasms and twitchings of the muscles were due to faulty metabolism within the muscles themselves, and not to central irritation.

Sir Thomas Oliver, who went to Hungary to study the question of ancylostomiasis, incidentally noticed the high temperatures to which the workers were subjected in the Sopron-Brennberg mines (91). The men work practically without any clothing. The day's work was eight hours, but the men could work only four hours. Owing to the high temperature the men were obliged to rest and to come out of the working into the main ways for air. As a consequence of working in high temperatures the Sopron miners seemed prematurely old, and the men were all thin and of spare body. A large number of them suffered from functional and organic disease of the heart. The effects of working in high-temperature mines were throbbing of the head, increased frequency of the pulse, discomfort in breathing, and physical exhaustion.

Body temperature.—The average temperature of a normal man is around 98.4° F. While the range in normal temperature is less than 2°, a much wider range has been observed in certain pathological conditions. According to Schäfer (38), even in those warm-blooded animals that possess a perfect power of heat regulation there are limits

to this power. If the animal be exposed to excessive cold, the loss of heat is great, and only within certain limits can compensation be effected by an increased production of heat. When compensation fails, then the animal's temperature falls, its bodily and mental activities are diminished, and it passes into a sleepy, unconscious condition which ends in death. Such a condition is observed in men or animals before they are "frozen to death." On the other hand, extreme heat can be resisted only within a certain range; the production of heat in the body can be diminished, but not suspended; the loss of heat can be greatly increased by sweating and by a greater exposure of blood in the vessels of the skin, but if the air be of a temperature equal to, or nearly equal to, that of the body, and greatly laden with moisture, then the loss of heat is slight or even suspended. Under such circumstances the internal temperature of the animal rises rapidly to a point incompatible with life.

Thompson (92) mentioned cases of recovery from insolation in which the body temperature was 111° F., 112° F., and 115° F.; but a case which sustained for some time a temperature of 117.8° had a fatal issue. He observed that in favorable cases under treatment the maximum temperature was sustained for only a few moments and the rate might fall 2° or 3° F. every 15 minutes. However, after very high temperatures—above 106° or 107° F.—there was a return of the rise of temperature later in the day or on the following day to 102° or 103° F., and a mild remittent fever might last for a few days or a week.

Haldane (48), as a result of 24 experiments on the effects of high temperatures and humidities on body temperature, found that in proportion as the temperature rose beyond 88° F. by wet bulb the rise of the rectal temperature became more and more rapid. Thus, at 89° to 90° F. wet bulb the rise was about 1° to 1.4° F. per hour; at about 94° F. the rise was about 2° F. per hour; and at 98° F. the rise was about 4° F. per hour. In moving air (with the wet bulb still below the body temperature) a higher wet-bulb temperature could be borne without abnormal rise of rectal temperature. Thus, in an air current of about 170 linear feet (51 meters) per minute a wet-bulb temperature up to about 93° F. could be borne without abnormal rise of body temperature. During muscular work in still air the limit of wet-bulb temperature which could be borne without abnormal rise of body temperature was much lower. Thus, during leisurely climbing work (13 feet per minute) the limit for a person stripped to the waist was about 78° F., or 10° F. lower than that during rest; and with harder work this limit would certainly be lower. At a wet-bulb temperature of about 87° the rectal temperature rose about 3.5° F. in an hour. In an air current of about 135 linear feet per minute a wet-bulb temperature of about 85° could be borne

without abnormal rise of body temperature, but 87° was beyond the limit.

In their investigations conducted in the hot mines of Montana, Sayers and Harrington (68) found that the temperature of a fairly typical subject showed increases above normal after an hour spent in still saturated air as follows: At 95° there was an increase of 1.4° in body temperature; at 96° an increase of 2.3°; and at 100° an increase of 3.4°. With saturated air moving 300 to 700 feet per minute, the temperature of the same subject rose 0.6° at 95°, 1.1° at 96°, 1.9° at 98½°, and 1.8° at 100°. The temperature of the subject in the 100° air temperature apparently did not have time to go to the higher limits as he was able to remain in this atmosphere for only 49 minutes instead of an hour as in the other tests.

Flinn (71) found, in experiments with dogs, that during a six-hour period of exposure to a temperature of 104° F., 80° F. wet bulb, there was a rise of 1° in body temperature, the rise being confined to the first and last two-hour periods. When the temperature was raised to 113° F. or 122° F.,[3] a very marked rise in rectal temperature was noted, and apparently this rise began at once. In fact it was so sharp that the body temperature rose within an hour, in some cases to such a height that it was not deemed safe to let the dog remain in the heat for a longer period. When air movement at the rate of 224 feet per minute was introduced at an air temperature of 122° F. the body temperature showed very little rise the first hour, amounting only to 0.4° C. By the end of the four-hour exposure it had increased by 2.6° C.[3]

Pulse rate and blood pressure.—The following data on the increase in pulse rate experienced in high temperatures are mentioned by Raymond (72) as having been obtained by Professor Whitney and Professor Church in the 1,800-foot level of the Julia mine of the Comstock Lode, Nev., in an air temperature of 108° to 110°: A carman, after bringing out a car about 1,200 feet had a pulse rate of 140 per minute, which fell to 64 after a rest at the station. Professor Whitney's pulse rose from 60, his normal rate, to 120 after walking through the drift.

Sonntag (93) found that there seemed to be a definite relation between the pulse rate and the area of the skin available for cooling, that is, if a part of the body was immersed in water at a temperature above that of the skin zero, a certain amount of heat loss was prevented, so that more loss must take place through the rest of the skin. The heart beat quickened so as to drive the blood more rapidly through the available skin area, and these actions were

[3] While the humidity is not given, it is presumed to be the same as that mentioned in the first sentence of this paragraph.

correlated by the nervous system, resulting in the increased pulse rate.

Judging from the various observations recorded by him, Haldane (48) concluded that the increase in pulse rate was usually about 20 beats per minute for each 1° F. of increase in rectal temperature, or 36 beats for each 1° C. while the subject was standing in the warm air, the increase being about a fourth less in the sitting posture. On return to cool air there was, however, an immediate drop in the pulse rate, so that the increase in the pulse rate was only about 10 per minute per 1° F. of increased rectal temperature in the standing position, and 8 beats sitting. The increase in pulse rate thus depended not merely on the rectal temperature but also on the external (wet bulb) temperature.

Palmer (94) found that a change even as little as from 68° to 75° produced in a very short time a visible reaction in the body mechanism. In a 75° atmosphere the pulse in one series of experiments rose from 79 in the morning to 89 in the late afternoon, an increase of 10 beats per minute. At 68° the pulse rate of the same subjects fell from 83 to 70 in the course of the day, a drop of 13 beats. The warmer room thus placed upon the heart the added strain of 23 beats per minute.

According to Johnson (75) the pulse rate corresponds roughly to the temperature; with a temperature of 110° F. or over, the pulse rate is from 150 to 180, and with continued hyperpyrexia it becomes imperceptible.

In the cooperative study conducted by the Bureau of Mines, the Public Health Service, and the American Society of Heating and Ventilating Engineers (95) the importance of the circulatory system was emphasized by experiments in which subjects were exposed to abnormal atmospheric conditions. These investigations led to the conclusion that the pulse rate would be selected as probably the best index of discomfort due to high temperature, if a single physiological measure were the basis of consideration. Investigators have long recognized that the body temperature alone is not the cause of the discomfort and their conclusions as a whole correspond with those of Haldane, who stated that the discomforts produced by high temperatures undoubtedly depend to some extent on other causes than the rise of body temperature, as indicated by the rectal temperature. It frequently happened in these experiments that the rectal temperature rose slightly after leaving the chamber, but the subject, nevertheless, felt more comfortable with the fall in pulse rate. Though no arbitrary rate at which certain symptoms occur has been determined, the consensus of opinion indicates that very uncomfortable sensations are felt after the pulse rate exceeds 135 per minute, and the atmospheric condition becomes unbearable

and the subject desires to leave the chamber immediately when the rate exceeds 160 per minute. Several experiments revealed the fact that some subjects attained a high pulse rate much sooner than others who were exposed to the same conditions, and therefore were compelled to leave the chamber sooner. In one instance a man attained a pulse rate of 160 in 10 minutes, while another remained in the chamber 35 minutes before the pulse reached 180. In the next experiment one attained a pulse rate of 160 per minute in 55 minutes, while another remained 1½ hours and the pulse reached only 156 pulsations per minute. In a third experiment the pulse of one reached 142 in 25 minutes, while the pulse of another reached 156 in 45 minutes. The pulse rate rapidly diminished after the subject left the test chamber.

In a study (96) on the effect of exposure of the nude human body to a current of hot desiccated air having a temperature of approximately 80° to 85° C. (176° to 185° F.) five subjects, three men and two women, all showed a definite increase in pulse rate, but the greatest increase took place in the case of the two women who were very fat; the rate in one case increased 23 beats after 22 minutes' exposure and in the other 34 beats after an exposure of 73 minutes.

The rise in blood pressure no doubt contributes to the discomfort. At 30 per cent relative humidity the change begins around 120° F.; at 60 per cent, around 104° F.; and at 100 per cent, around 92° F. Subjects describe (93) the sensation felt on reaching the unbearable condition as follows: First, a slight palpitation of the heart occurs, which increases in severity until a feeling of floating in the air is experienced. This is accompanied by dizziness, and frequently with a numbness or soreness of the face, and with nausea.

The New York State Ventilation Commission (77), as a result of their studies on the effect of various temperatures and humidities on the heart rate, pulse rate, and blood pressure, found that exposure of subjects to an atmosphere of 20° C. (68° F.) and a relative humidity of 50 per cent for a period of from four to eight hours was accompanied by a decrease in the rate of the heart, averaging 11 beats per minute when the body was in the reclining position and 18 beats when in the standing position. At a temperature of 24° C. (75° F.), 50 per cent relative humidity, there was only a negligible change in the heart rate; at 30° C. (86° F.), 80 per cent relative humidity, there was an increase in the rate of the heart in the standing position, and in the reclining position a negligible average decrease. Exposure to a temperature of 38° C. (100.5° F.), average humidity of 86 per cent, for a period of 2.43 hours was accompanied by an average increase in the rate of the heart of 28 beats per minute, or 43 per cent, the average maximum increase being 41 beats, or 63 per cent. When the experimental subjects increased the rate of the heart beat by per-

forming physical work in the two atmospheres of 20° C. (68° F.) and 24° C. (75° F.), the humidities being the same, the return of the heart to the original rate was slightly earlier in the cooler air. The systolic and diastolic blood pressures of the experimental subjects in the three moderate atmospheric conditions studied exhibited no marked changes; but subjection of an individual to the more extreme condition of 38.3° C. (101° F.), 87 per cent humidity, for 2.5 hours was accompanied by an average increase of systolic pressure, amounting to 12.6 mm., or 12 per cent, and of diastolic pressure of 1.4 mm., or 2 per cent, the respective average maxima being 22 and 16 per cent.

According to Martin (97), it is not necessary to look beyond the mammalian heart itself to account for the quick pulse of fever; no theoretical assumption of any paralysis of inhibitory or any excitation of accelerator cardio-extrinsic nerve centers is required. The experiments show that, in spite of its highly developed extrinsic nervous apparatuses, the heart of the mammal does, so far as its rhythm is concerned, in its own nervo-muscular tissues, respond to temperature variations within wide limits (42°–27° C.—80°–108° F.), just as the frog's heart or the heart of the embryo chick does.

Sedgwick (98) mentioned the fact that, while physiologists were not agreed as to the effects upon reflex actions of changes in temperature, it was generally known that protoplasm, from almost complete inactivity at a low temperature, passes with a gradual rise of temperature little by little into a phase of greatest activity beyond which under excessive heat its functions fall rather quickly back to zero, or if the temperature be raised still higher, pass beyond and disappear with the occurrence of coagulation and death. He found from experiments that the heart, obeying the laws of protoplasm, always beats faster when fed with heated blood. An increase in heart rate due to increased accelerator tone, caused by increased temperature of the carotid blood, was noted by Moorhouse (99) in experiments on dogs.

The vasomotor response to high temperatures seems to be more delicate than that of the heart or respiratory mechanism, judging from the increase of blood in the periphery (99).

In the efforts of the body to defend itself against overheating, evaporation of water from the lungs and skin as well as direct radiation and conduction of heat from the surface of the body is involved (100). Both evaporation and radiation are favored by an increased blood flow through the skin. According to the older views, vasomotor shifts of blood to the surface at the expense of the interior were chiefly responsible for the increased surface blood flow, but it now appears that the value of these shifts may be much enhanced by augmented blood volume, brought about by rapid dilution (101).

The water thus made available serves in the evaporation and radiation processes.

Light upon the heat-regulating mechanism from this angle is shed by the recent work of Kestner and his collaborators upon the effects of exercise. They have shown that marked exertion with sweating dilutes the blood, as indicated by diminished hemoglobin content and red blood cell count. Gross and Kestner (102) showed further that this stream of fluid into the blood is associated with an increased rather than a decreased protein content.

Before leaving the question of increased blood flow in warm environments it may be pointed out that with very high environmental temperatures it would be of advantage to have a diminished blood flow through the skin rather than an increased blood flow, thus protecting the body to a certain extent in a manner precisely similar to that in which it is protected against excessive cold. Put in another way, increased surface blood flow promotes poikilothermia, because it facilitates the conduction of heat either to or from the body. In this connection Berti (103) has shown that very high temperature may produce vasoconstriction. Under conditions of extremely high temperature there is also a tendency to increase the coagulability of the blood, the greater viscosity probably hindering the flow through the surface (104).

Exposure to high temperatures increases the loss of carbon dioxide from the blood through the skin and lungs. This lowering of the carbon dioxide tension increases the hydrogen ion concentration of the blood and ultimately leads to an excretion of alkali from the blood. The carbon dioxide dissociation curve of the blood is not significantly altered. The peripheral blood vessels are greatly dilated during exposure to high temperatures, and this dilatation continues indefinitely. The lack of high resistance in the peripheral blood vessels prevents blood from returning to the heart. The heart rate increases steadily and rapidly, and is even able to increase the systolic blood pressure. In spite of this compensating activity on the part of the heart, the blood flow back to the heart finally becomes inadequate. At this point circulatory failure or shock is complete, with faintness. The rise in skin temperature seems to play the initiatory part in the control of the respiratory and circulatory reactions (105).

In addition to the effects on the circulation of the blood, high temperatures also seem to react on the blood itself. In response to the heat stimulation, the blood apparently is diluted by a protein-salt solution flowing from the tissues into the blood (106, 107). Young and his coworkers (108) found that a small concentration of the blood plasma takes place when considerable loss of water is suffered by the body; the estimation of the refractive index gave such constant

results as to warrant the conclusion that a definite concentration of the blood takes place as the result of copious sweating. Sayers and McConnell (95) found that the hemoglobin concentration increased proportionately with the amount of weight lost.

The results of studies of Barbour and Hamilton (109) on heat regulation are of interest in connection with the question of blood concentration in persons exposed to heat. They concluded that increased blood concentration was clearly established by previous investigations (109, 110) as one of the constant protective responses of the body to environmental cold, that this concentration is quick and reversible and is, therefore, not due to hematopoiesis, and that the evidence that fluid is shifted in and out of the blood stream in heat regulation is strengthened by the result that the serum became diluted in the hot room part of the experiment, thus confirming their numerous experiments on man which indicated that the phase of blood dilution in response to warm environment, the solids, nitrogen, and specific gravity of the serum, dimishes. After determining that cold anhydremia is not merely relative but due to actual loss of fluid from the blood, they sought for the reservoirs where this fluid might be stored. From experiments on dogs (111) they found that the skin, subcutaneous tissue, and muscles formed such reservoirs, and they concluded that this accumulation of water in and under the skin in the regulation against cold may be of considerable value. The significance of loss of fluid from the actively-circulating blood has been repeatedly emphasized as a means of facilitating the reduction of the peripheral blood flow to save heat. This fluid which leaves the blood serves the additional function of increasing the thickness of the insulating tissues. Contained undoubtedly in small cutaneous and subcutaneous vesicles, it can not carry heat by convection and is, hence, as good an emergency insulator as could be found within the body. The "suit of clothes" which protects those regions in which blood now actively circulates is thus further padded by water.

Moss's investigations (112) among miners lead him to conclude that during work in high temperatures some of the men suffered from a great shortage of chlorides in the blood, caused by a combination of excessive sweating and drinking of water, with attacks of "cramps" resulting. He did not feel that the sweating alone could be responsible for the shortage, since the tendency would be toward a concentration of chloride in the blood, but thought that the excessive drinking of water by miners, due probably to the dryness of the mouth and throat, tended to dilute the blood until in some of the men examined the excretion of chlorides by the kidneys showed a very marked decrease from normal despite the enormous excess of urine passed. In order to relieve "cramps" and also fatigue, Moss recommended the addition of salt to the water drunk by the miners.

He found from experiments that 10 grams of sodium chloride to a gallon of water helped some of the miners while others did not seem to get any benefit. Further experiments conducted by him point to the efficacy of using in the drinking water a mixture of sodium and potassium chloride in the proportion of 60 per cent of the former to 40 per cent of the latter, instead of pure sodium chloride. It appears that a number of miners working in the hottest district in Pendleton Pit take a small amount of cream of tartar (potassium bitartrate) in the drinking water as a cramp preventive, which indicates the value of potassium salt in keeping the body properly balanced physiologically.

According to Pemberton (113), who studied for some years the changes accruing from the exposure of the body to external heat in the form of radiation from electric lamps, exposure of the body to the therapeutic application of external heat results in a heightened blood flow, an increased metabolism, and in the elimination of acids, chiefly carbon dioxide, which escapes through the lungs, urine, and sweat, in amount in the order of means of escape named. This leaves an excess of alkali in the blood, which then changes its reaction, becoming more alkaline. In the compensatory effort to meet this situation, the excess of alkali is eliminated through the sweat and urine. The profound nature of the changes introduced by these measures is clearly indicated, and explanation is afforded of some of the painful consequences which follow their uncritical use. If carried to extremes, tetany may result. The available evidence indicates that part of the benefit of the sweat process in some forms of nephritis is due to loss of acid substances from the body, with consequent benefit to the acidosis frequently accompanying renal disease.

The total concentration of sweat is less than the total concentration of blood (114). The chloride concentration is less than that of blood, and the acidity is always greater than that of the blood. Nevertheless, the chloride and acidity are probably influenced by the composition of the blood, for the sweat is more concentrated in chloride and in alkali after the blood has become concentrated and more alkaline. McConnell and Sayers (90) report that the rate of secretion of sweat mounts rapidly with increased wet-bulb temperature, and is proportional to the number of degrees of temperature above 91° F. The sweat becomes less acid as its secretion continues. The secretions from the chest and arms are more acid than those from the face. The range of acidity found does not depart greatly from neutrality. It is usually between neutrality and the slight alkalinity characteristic of the blood. The most dilute sweat occurred at the beginning of a test. The most dilute sweat contained 0.03 M. chloride, equivalent to 0.17 per cent sodium chloride. The most concentrated, approximately the same for all subjects, was about

0.08 M. Reliable results could be obtained only from samples collected in conditions of 100 per cent relative humidity, for otherwise the sweat was concentrated by evaporation. The salinity and alkalinity are roughly proportional to each other. Sweat from the chest is of higher concentration than that from the arms and face.

An individual in whom the absence of sweat glands had been demonstrated by microscopic examination was studied with reference to the elimination of heat and water vapor (115). At rest a normal quantity of water vapor was liberated. Of this less than 30 per cent came from the lungs and the remainder from the skin. Vaporization of water from the skin independent of the sweat glands was thereby demonstrated. The quantity of water so eliminated was sufficient in combination with heat lost in other ways to keep the body temperature within safe limits, even with exercise which increased the metabolism, for a period of 35 minutes to two and a half times the resting value. During this exercise the elimination of water did not increase as in a normal individual and the body temperature rose somewhat higher. With exposure to external heat there was no increase in the quantity of water vaporized, and the body temperature rose sharply. The study of this patient confirms the theory that the sweat glands constitute an emergency apparatus which is called upon only under exceptional conditions.

In a paper published by Mitchell (116) upon the effects of damp heat (90° to 100° F. dry bulb, and wet bulb within 5° F. of this) observed by him in the Persian Gulf and elsewhere, the statement was made that "damp heat" of itself frequently produced an alteration of the blood, visible only as anemia, and that this alteration was primarily responsible for the difficulties encountered in the treatment of other conditions. He thought that if this alteration in the blood could be thoroughly investigated by elaborate chemical and bacteriological methods, a remedy, probably preventive in nature, might be found for the large amount of disease which proves so intractable in such climates. Wickline (117), who made a study of the blood cells in American troops incidental to the complete physical examination made at intervals during residence in the Philippines, found that there was a marked increase in the relative and absolute number of mononuclear blood units, the increase being at the expense of the polymorphonuclear leucocytes. There was no marked changed in the total white cell count. Chamberlain (118) later confirmed and extended the findings of Wickline. Murphy and Sturm (119) pointed out the large number of lymphocytes found in the circulation apparently in the process of an amitotic division. They said that after heating there is a large increase in what appears to be normal circulating lymphocytes of both the large and small type, but that it was impossible to say where they had arisen, although

probably from stimulation of the lymphoid centers. According to Nakahara (120) a striking number of mitotic figures have been observed in the germinal center of the spleen and lymph glands during the regeneration of the cellular elements of these organs after the destructive effect of heat. This enhanced cell proliferation is interpreted as more than compensating for the degenerated cells, because of the subsequent enlargement of the organs. It has also been pointed out that the characteristic decrease in the number of lymphocytes immediately after the heat treatment is always accompanied by an extensive cell degeneration in spleen and lymph glands at the corresponding period. On this basis it seems evident that the pronounced lymphocytosis induced by means of heat treatment of the animal is due, at least in part, to the enhanced proliferative activity of germinal centers in the spleen and lymph glands, reacting to the destructive effect of heat upon lymphoid cells.

Respiration.—With increasing humidity it is noted that at high temperatures the respiration frequency increases so much that care must be taken not to expose oneself for a long time to a very high temperature. The connection of the increased decomposition of foodstuffs with the increased work in breathing is sufficiently expressed in the increase of total heat production which from 69.3 cal. at 9.0 per cent relative humidity reaches 70.9 cal. at 16 per cent and 75.5 at 30 per cent relative humidity (44). Haldane (48) found that hyperpnea was not noticeable until the rectal temperature exceeded 102° F.; at 103° it was marked during muscular work, and distinctly noticeable during rest. According to Sihler (121) respirations grow more shallow instead of deeper in warm moist air. In the case of lower animals, rates of 300 per minute and over have been observed (122) with the thermometer 100° to 104° in the shade. Lee and Eastman (77) observed that when a young man was confined for a period of 2.43 hours in an atmosphere which reached an average temperature of 100.5° F. and an average relative humidity of 86 per cent, the rate of respiration per minute increased from an average of 23 to an average of 31.2, a percentage increase of 35. The average of the maxima of the several experiments was 42. McConnell, Houghton, and Yagloglou (69) report that, in experiments conducted by them with subjects at rest, the respiratory rate did not noticeably increase during the test, except in extreme conditions. In the moderately warm experiments the respiratory rate frequently diminishes. In the extreme conditions the air is too hot to inhale through the nostrils and necessitates oral breathing. The subject apparently seeks relief through respiration, but on inhalation he finds no relief and immediately exhales, so that the result is a series of short, irregular respirations. It is doubtful whether the ventilation of the lungs is increased under these conditions. In tests where the air is not too hot, and

permits of nasal breathing, all subjects were able to hold their breath longer than in cooler atmospheres. In the extreme conditions, if the subject's attention is called to his rapid breathing, and he is asked to breathe slower, he invariably does so. On the other hand, on leaving the test chamber, the respirations increased in depth and number. A certain amount of relief is experienced in so doing, and the subject continues to breathe rapidly and deeply until he is relieved of the symptoms of discomfort he has just experienced.

Loss of weight.—According to McConnell and Sayers (95), the loss of weight varied with the individual, the heavier and stouter man losing more than the lighter and thinner one. Notwithstanding this, the lighter man, as a rule, could not endure the temperature conditions as long, and complained more of the exhaustion which followed. The conclusion, however, that all stout men can stand heat better than thinner ones is unwarranted, because only a few men, neither very thin nor very stout, were subjects of the experiments. The loss in weight gradually increased with an increase in atmospheric temperature. Whenever the subject drank ice water he immediately gained in weight. In any case the subject usually regained the entire weight lost within 24 hours. Benedict and coworkers (97) observed the following effect on body weight of exposure of the nude human body to a current of hot air having a temperature of approximately 176° to 185° F.: There was a loss in body weight of from 220 to 660 grams per hour, this loss in general being greater the larger the individual. The length of exposure to the hot air also undoubtedly played some rôle. The normal loss of a nude human being in room air would be about 40 to 50 grams per hour. Hence the loss due to exposure to hot air would be five to thirteen times greater. This increased loss is due almost exclusively to the increase in visible perspiration. Measurements of the oxygen consumption show that it probably represents only a minor increase in the oxidation of body tissue.

Body metabolism.—The increased body metabolism of inhabitants living in cold climates as compared with that for persons living in warmer climates is frequently referred to in the literature. Contrary to what might be expected, metabolism also increases with exposure to high temperatures. Both the carbon dioxide output and the oxygen consumed increase with exposure to either higher or lower temperature than the normal atmospheric condition. The investigations by the Bureau of Mines in cooperation with the Public Health Service and the American Society of Heating and Ventilating Engineers (123) indicate that there is a temperature zone of minimum metabolism, between 75° and 83° effective temperature, within which a lowest value of 36 calories per square meter per hour is reached. These investigators believe that basal metabolism should

be measured within this zone. This is substantiated from results of various other investigators who recorded values well below the DuBois standard, depending upon the temperature in which the observations were made. The rate of gaseous exchange is practically constant within a temperature zone between 70° and 85° effective temperature. Above and below this zone both quantities increase at an accelerated rate. At the normal temperature of 65° effective temperature the figures show an average of 7.3 liters of carbon dioxide expired and 7.7 liters of oxygen (O_2) consumed per square meter of body surface per hour. This corresponds to a respiratory quotient of 0.948. A tendency for an increase in heat production is also shown below 65° effective temperature, which is necessary to keep the body warm in cold weather.

Experiments carried on, with the subject naked, to determine the secretion of carbon dioxide by the skin and its dependence on temperature, according to Schierbeck (124), indicated that at a temperature of 30° to 33° C., with complete rest, the amount of carbon dioxide excreted was about 35 to 40 mg. per hour; but if the temperature went higher than 33° C. the excretion of carbon dioxide suddenly began to increase so that at 34°, which seemed to be a critical point, the carbon dioxide secretion through the skin suddenly increased very greatly. At a temperature of 33° C. the subject felt pleasantly warm, as he would have felt normally when clothed, and showed no perspiration. At higher temperatures the skin was always covered with sweat and the subject felt unpleasantly warm. The increase in carbon dioxide secretion began suddenly at the same temperature at which sweat broke out on the surface of the skin. Of course this point would probably vary with different individuals. The amount of carbon dioxide excreted from the skin in 24 hours must certainly not be less than about 8 grams. It was found that clothing *per se* had no influence on the secretion of carbon dioxide, except that the secretion took place sooner with increased temperature with clothing than without clothing.

Von Willebrand (125) carried out some experiments, with the object of studying more closely the physiological processes mentioned by Schierbeck and others, from which he concluded that the secretion of water through the skin, when the body is at complete rest, increases slowly in proportion to the temperature of the surrounding air while the same goes up from 12° C. to the point at which sweat breaks forth. The secretion of carbon dioxide through the skin remains unchanged during complete rest at a temperature from 20° to 33° C., being about 7 or 8 grams in 24 hours. However, when the temperature reaches the point at which sweat appears (about 33° C.) the carbon dioxide excretion suddenly increases to three or four times this amount. From his experiments von Willebrand favored the

hypothesis that the invisible secretion of water takes place mostly through "evaporation" from the surface of the skin, but in the literature at his disposal he found no explanation of the manner in which the secretion of carbon dioxide occurs through the skin. However, he assumed that the carbon dioxide present in the blood is diffused through the fine capillary vessels and then through the epithelium. At low temperatures this takes place uniformly and slowly. But when the sweat glands are activated by higher temperatures, they may be considered as producing carbon dioxide in greater quantity.

As the greater number of observations of reaction of animal body to varying temperatures has been carried on under artificial conditions, Osborne (122) made experiments under more normal conditions, out of doors at an altitude of about 150 feet above sea level, from which he concluded that if the air is dry and in motion it will tend to desiccate the skin, but that there must be a limit to the extent of desiccation, as the skin can be injured easily owing to the fact that many of its physical properties depend on the water of imbibition which it contains. If, however, the normal state of imbibition of the skin be maintained by vaso-dilation of the peripheral vessels and by perspiration, the heat loss will become excessive if the air temperature is well below that of the body. In such conditions if the body is to preserve its constant temperature with constant metabolism, the skin will be injured. If body temperature and skin imbibition are to be maintained constant, then the metabolism must be augmented. What apparently occurs is a compromise between the two extremes; the skin loses some of its water of imbibition and the metabolism undergoes a moderate rise. This increased demand on the metabolism of the body when the wind is cold, dry, and in motion, may be one of the causes of the proverbial unpopularity of the east wind in northwest Europe.

Mayer (126) found by experiments with reef corals from Tortugas, Fla., that if the rate of consumption of oxygen be taken as a measure of the metabolism of the corals, it appears that the metabolic activity bears an inverse ratio to the corals' ability to withstand the effects of carbonic acid, and their ability to resist high temperature follows nearly the same law. It seems possible, therefore, that, under the influence of high temperature, carbonic acid may accumulate in the tissues faster than it can be eliminated, and, acids being toxic, would soon cause death. He recalled that Blackman (127) and Harvey (128) advanced the theory that some enzyme might be destroyed by the excessive heat, and, being essential to nerve conduction, its loss caused the rate to decline. Mayer (126), however, thought it possible that some toxic-acid substance might be formed under the influence of excessive heat, its rate of formation being

commensurate with the metabolism of the tissues, and that acid of this sort might be eliminated and the rate gradually restored when the animal was replaced in normal sea water, whereas if an enzyme were destroyed it might not so readily be replaced. He felt that one or other of these hypotheses was more in accord with the facts than Winterstein's (129) asphyxiation theory, or the theory that death occurs at too low a temperature for coagulation in most if not all proteids, and when killed, the animals are fully relaxed, as shown by Harvey. Also, coagulated proteins could not be eliminated readily when the animal was restored to water at normal temperature, coagulation being a practically nonreversible process.

Bernard thought that the cause of death from exposure to high temperature was due to the action of heat on the muscular element (46), heat very evidently being a stimulus for the muscular system of the organic life. However, according to him, there is a limit which can not be passed, and excess of heat ends by stopping the muscles of the heart as the other muscles, and, here as always, that which is a vital physiological agent becomes a toxic agent when its action is pushed to the extreme. Thus, if the temperature is raised too much, the heart beats, after becoming more and more rapid, suddenly cease. In the same way the peristaltic movements of the intestine completely cease if subjected to heat beyond a certain limit. In these cases it is death complete, absolute, inevitable, that seizes the muscular tissue; and, in fact, in case of animals killed by heat, the heart is absolutely insensible to all excitation, and finally cadaveric rigidity takes place with extreme rapidity. Bernard's first thought was to search for the cause of these phenomena as being of purely chemical nature. It appeared to him very possible, or at least probable that a real coagulation of the myeline takes place and that this is the cause of the death of the muscular element and of the heart in particular. It is, then, the loss of the vital properties of this element that, by producing rigidity, arrests the circulation and respiration and causes death. Bernard believed that this destruction of the contractile element takes place at about 37°–39° C. with cold-blooded animals, at about 43°–44° C. with mammals, and at about 48°–50° C. with birds, that is to say, in general, at some degrees above the normal temperature of the animal.

In a study to determine the influence of the local bath upon fatigue of voluntary and involuntary muscle, Patrizi (74) found that below 46° C. no modification from normal was produced by heat and that it was not possible to raise the heat much above this as the pain was intolerable, but there was an essential change at 46° to 47° C. The modification of the type of curve traced by the ergograph was more marked in those with heat traced without the interference of the will; that is, with the direct electric irritation of

the muscles. He considered that this peculiarity confirmed anew the fact found by Mosso (130) that the muscle, independent of the nerves and brain, has a manner entirely its own of exhausting its energy and that certain phenomena of fatigue, which were believed to be of central origin, must be imputed to the periphery. The margin of adaptation of the muscle to a temperature lower than that of the body, according to Patrizi, is even more extensive than that for heat.

Fletcher and Hopkins (131) called attention to the large increase in the yield of lactic acid as the result of heating and also as a result of contractions of excised muscles, but the amount of acid attainable by severe direct stimulation is not more than about one-half that reached in the production of full heat rigor (at 40°–45° C.).

According to Lee and Scott (132) the results of their studies seemed to indicate that the disinclination to perform muscular work rests upon a greater physiological basis than a cerebral condition only, whether this be merely a relative cerebral anemia or an additional depression of cerebral activity through toxic metabolic products. Besides an effect on the nervous system, the capacities of the muscles themselves are diminished. Hence, excessive muscular work, a whipping-up of the muscles, would tend toward early muscular exhaustion, and thus we have additional physiological justification for maintaining that with human beings who are obliged to labor in an atmosphere of extreme heat and humidity excessive and continuous muscular labor should be avoided.

The effect of cold on body temperature up to the point of death from freezing is described in Lefèvre's "law of refrigeration" as follows (39):

1. *The law of peripheral homothermism.*—With a subject exposed to refrigeration below 25°, the cutaneous covering, after an initial rapid decrease of temperature, speedily adapts itself and remains sensibly homothermic by becoming stable between 18° and 27°, according to the refrigerating temperature.

2. *Law of the central poikilothermism.*—In these same refrigerations, when they are prolonged, the sub-aponeurotic regions, for a time homothermes (initial hyperthermism), quickly give up their heat to the peripheral regions to aid them against the attack of the cold (cutaneous hyperemia) and tend to become lower during the rest of the refrigeration.

3. *Law of internal poikilothermic uniformity.*—During this time, the thermic oscillations of the different sub-aponeurotic regions are parallel. There does not seem to be any privileged region, for the fat itself, the warmest of the viscera, submits to the common law, and has reached in this second phase a sensible poikilothermic depression equal to that of the rectum and the muscular coat.

4. *Law of thermogenetic excitation "in extremis."*—When the temperature of the body has descended to the vicinity of 30° or 32°, the decrease is considerably retarded by a supreme effort of thermogenetic resistance.

5. *Law of the final generalized poikilothermism.*—But when the refrigeration has been severe enough and of long enough duration to lower the temperature of the body to the level of the temperature of its peripheral covering, that is to say about 25°, the poikilothermic depression becomes general, all the temperature peripheral or internal, fall simultaneously.

6. *Law of progressive thermic equalization.*—Finally, the initial topographic inequality of the peripheral and internal regions disappears then little by little; all the curves tend toward the horizontal of 25° by progressive but general fall of subaponeurotic temperatures.

7. *General law of the thermic depression in four periods.*—The refrigeration then goes through four phases, as follows:

a. Peripheral poikilothermism with internal homothermism (first phase of thermogenetic excitation);

b. Peripheral homothermism between 18° and 27°, with rapid internal poikilothermism, up to the vicinity of 30° or 32°;

c. Slowing of the internal poikilothermism with tendency toward a new central homothermism (second phase of thermogenetic excitation) to 25°;

d. Final generalized poikilothermism, rapidly carrying the organism from 25° to the fatal temperature.

Thus, up to the end, even in these intense and prolonged refrigerations, the warm blooded animal has been able to escape the common laws of refrigeration; it preserves its discipline and its own reactions, even though it is going to succumb to the cold.

Measures for the Prevention of Ill Effects of Exposure to High Temperatures

PERSONAL HYGIENE

In his "Manual of the Diseases of Warm Climates," Manson (26), in calling attention to the part played by hygienic living in enabling people to adjust themselves to excessive temperatures without untoward effects, stated that the healthy human body, when untrammeled by unsuitable clothing, when not exhausted by fatigue or excesses, when not clogged by surfeit of food, by alcoholic drinks, or by drugs, can support with impunity very high temperatures. In many parts of the world men live and work out of doors in temperatures of 100° or even 120° F. Many industries are carried on at temperatures far above this—glass blowing, sugar boiling, for example. The stokers of steamers, especially in the tropics, discharge for hours their arduous duties in a temperature often above 150° F. When, however, the physiological activities have become impaired by disease, especially by heart disease, kidney, liver, or brain disease, by malaria, by alcoholic or other excesses, by fatigue, by living in overcrowded rooms, or when the body is oppressed by unsuitable clothing, or a combination of some of these, then high atmospheric temperatures are badly supported, the enervation of the heart may fail, and syncope may ensue. However, according to Kober (89), while the human organism endeavors to adapt itself to extremes of heat and cold, the facility of the body to maintain the equilibrium is by no means unlimited, and the heat-regulating center is liable to fail, or become paralyzed if imposed upon too long or too frequently. Kober's statement agrees with that made by Harrington and Richardson (133) that, if people can take reasonable care of themselves,

and do not give way to excesses in any form, as in drinking, eating, or working, they will live as healthily in Manila as in New Orleans or St. Louis or New York; but they can not withstand the effects of any tropical climate for long without an occasional visit to the temperate zone, for prolonged residence brings about an undoubted deterioration of the system in spite of all possible care.

The wearing of proper clothing is of importance in the prevention of the ill effects of subjection to extremes of temperature, either climatic or industrial. Clothing aids the human body in maintaining its constant temperature (134). Air is entangled and rendered stationary within its cellular structure and between its layers, thus insulating the body against heat loss. The loss of heat by radiation and convection is reduced considerably through a decrease in the surface temperature, but the heat loss by evaporation may, under certain conditions, increase because of the greater surface afforded by the clothing. The rate at which clothing transfers heat through it depends upon the material, condition of the same with respect to moisture, thickness, and size of its meshes. When dry, cotton or woolen clothes of the same thickness and size of mesh are equally good; but when wet, woolen clothes prevent heat loss much better than cotton. In general, it can be stated that other things being equal, the rate at which clothing transfers heat depends upon the amount of air within its meshes and between its layers. In general, normal clothing at ordinary humidity halves the cooling effect of wind as compared with that obtained when only light work trousers, socks, and shoes are worn. The importance of stripping to the waist is therefore apparent when high cooling power of the air is desired, provided that the temperature conditions do not exceed certain prescribed limits. On the other hand, clothing in a number of instances is advantageous in increasing loss of heat by evaporation and decreasing heat gain by radiation and convection. This is particularly true when very high dry-bulb temperatures are accompanied by humidities below 20 per cent, and when the wet-bulb temperature is well below 99°. In fact, man is capable in such cases of increasing evaporation materially by suitable clothing. An elastic cotton union suit which will cover tightly as much of the body's surface as possible constitutes an ideal outfit for exposure to hot atmospheres. The excessive perspiration, most of which runs down and off the body in the case of a man stripped to the waist, and thus rendered unavailable for evaporation, is absorbed by the cotton garment and distributed uniformly over the entire surface by capillary action. This method of exposure eliminates the burning effect upon the areas of the body which become dry, while other parts of the body's surface are cooled adequately by the evaporation of abundant perspiration. Clothing should never be removed when the wet-bulb

temperature exceeds the temperature of the body. The air in such cases should be kept as still as possible, and the more the clothing the greater the insulation against transfer of heat from the air to the body.

Leonard Hill (135) blames custom and fashion for imposing on people clothing which is either unsuitable in character or too much. According to him the great error is lack of ventilation. Too heavy clothing is less of an evil than badly ventilated clothing, because the latter provokes excessive sweating and leaves the skin needlessly long in active state. Clothing should allow great adaptability of the body to change in temperature. It should not provoke sweating in the resting subject in still air at too low a temperature, e g., at 27° instead of 30°. For extreme cold, such as experienced by Arctic travelers, a light waterproof and wind-proof flexible outer cover should be worn with a thick layer of air-holding, fluffy material beneath. For tropical heat Hill recommends an open-meshed, cellular, cotton or linen garment, if the skin is tanned. To prevent sunburn in the untanned, a garment should be worn of close enough mesh to prevent penetration of the sun's rays—a single flapping sunproof white robe, loose enough to be well ventilated.

VENTILATION

Hygienic living and the wearing of proper clothing are of more importance in the prevention of the ill effects of heat due to climatic conditions than in the case of exposure to heat in industrial work. One reason for this is that in industry the temperature usually may be regulated by proper ventilation or by refrigeration. Of course, some time in the future, homes and business establishments may have a cooling system for the summer as they now have a heating system for the winter. At present, ventilation is the most feasible method, although there are a few instances in which refrigeration is being used, as in the St John del Rey mine in Brazil. To secure good working conditions in a deep mine, action should be taken to keep the effective temperature below 80° F. Read and Houghton (136) have indicated the difficulty of doing this, as the temperature and humidity of the incoming air of a mine will depend upon the climate of the region in which it is situated; in some cases it will vary widely from day to day and month to month, in others it will vary but little. As air descends the shaft of a deep mine two things usually happen. The first is that the temperature of the air increases continuously with depth, and the second is that the moisture content of the air also increases. The temperature of the air increases with depth for two reasons, and one, perhaps the more important, is seldom recognized, the observed effects being usually ascribed to the

other. It is an accepted fact that air currents on the earth's surface become cooler when they rise, and warmer when they sink. The increase in temperature due to sinking arises from the fact that the compression of the air by reason of the greater pressure to which it is subjected with depth, produces heat, just as heat is produced in the cylinders of an air compressor. The air is not a good conductor of heat and also usually has little opportunity to give off this heat to its surroundings, so that on being subjected to increased pressures its temperature increases (adiabatic compression).

The temperature rise due to adiabatic compression is important, because it is independent of the quantity of the air circulation, being only a function of depth. It makes no difference whether 10,000 cubic feet per minute or 100,000 cubic feet per minute are being circulated, it will rise 5½° F. for every 1,000 feet in depth unless the heat due to compression is disposed of otherwise than by raising the sensible heat of the air. The heat release by the rock walls is dependent on the area exposed and the conductivity of the rock; when these two factors are known, the quantity of air to be passed can be regulated so as to give any desired rise in the sensible heat of the air. If the moisture content of the air current will permit and if enough moisture is available for evaporation, the whole heat release may be taken care of as latent heat, without any increase in sensible heat. It is interesting to note in this connection that in many coal mines it is necessary to guard against the drying out of the dust, and the downcast air is therefore sometimes humidified, which greatly decreases its cooling power. Where the effective temperature of the ventilating current is so high that its cooling power for man approaches zero, no practicable increase in velocity will suffice to raise the cooling power to a satisfactory figure, and the only practicable method is to lower the effective temperature. It has been shown that this can best be done by decreasing the moisture content of the air, a refrigerating plant being used for this purpose in the one instance in which it has been attempted.

The one instance, referred to by Read and Houghten, is that of the cooling plant installed in the Morro Velho mine of the John del Rey Mining Co. of Brazil. In this plant, as described by Davies (137), the downcast air is passed through two large Heenan air-coolers, and from these it enters the mine at a temperature of about 43° F. It was decided that it would not be safe to put any of these installations down the mine. Since the mine is an almost absolutely dry one, there was no fear of a great quantity of moisture being picked up; the scheme would not work in a wet mine. The average dry-bulb temperature at the surface now is approximately 68° F., and it is being reduced to 43°, a drop of 25° on the surface; and as the

strata around the airways become cooler, that temperature drop should be reached approximately throughout the mine.

In a paper devoted to industrial applications of the experimental facts developed in the cooperative studies conducted by the Bureau of Mines, the Public Health Service, and the American Society of Heating and Ventilating Engineers, Yagloglou and Miller (70) expressed the opinion that, in cases where air motion produces considerable cooling, it is the simplest and most inexpensive method available, but that at high temperatures the benefit derived from movement of the air is small, and steps should be taken to reduce the effective temperature by other means prior to setting the air in motion. One of the most important principles of air conditioning is manifested in the cooling produced by the evaporation of water. When air partly saturated comes in contact with water, as, for instance, by passing it through a humidifier, a certain amount of heat is absorbed from the air in the process of evaporation, effecting an appreciable lowering in the temperature of the air. The wet-bulb temperature remains the same if no heat is added to or subtracted from the system, the sensible heat of the air being transformed to latent heat. Ultimately the dry-bulb temperature of the air is reduced to that of the wet bulb when the air becomes completely saturated. In addition to the cooling obtained from the evaporation of water, the effect of air movement reaches a maximum value at saturation, and an enormous amount of cooling results from the combination of the two. This method of artificial cooling is very promising to many hot operations in industries where the humidity of the air is not very high. The air is simply saturated and blown upon the workers. The process involves the use of simple and inexpensive equipment as compared with refrigeration, such as humidifiers and fans.

The benefits of increased efficiency on the part of the workers, which, in turn, means increased output, and therefore greater financial return, to be derived from proper ventilation of working places have been described by various authors. According to Collis and Greenwood (138), energy which should be devoted to muscular work is wasted when it is diverted to cooling the body by sweating; and the aim of industrial ventilation should be to stimulate the desire for physical work, the desire for healthy activity. The employer by having regard to this physiological fact in arranging ventilation will secure greater efficiency and output; the worker, by working in a healthy atmosphere, will have increased comfort, enjoy better health, and do more work with less fatigue.

In his bulletin on Underground Ventilation at Butte (139), Harrington discussed the financial aspects of effective ventilation in mines, the summary of which is given below:

Continuance of unfavorable working conditions underground results in impaired health for mine workers and in immense financial loss to operators. In a section of a mine having unusually poor ventilation and high temperature and humidity a bonus of 25 cents a day over the regular wage was paid, the working shift was reduced from eight to seven hours, and while one man worked his partner sat under a compressed air hose to cool and to recuperate. The maximum efficiency of the worker, who had to be a man of exceptional endurance, was much less than 50 per cent, probably not over 30 per cent, yet he received a bonus of 12½ per cent in reduced length of shift and an increase of 25 cents per shift in pay.

A 30 per cent loss of efficiency, due to defective mine ventilation, among men working underground at Butte is probably a conservative estimate, but, figured for each of the 13,000 underground workers in 1917 and 1918, with a wage of $5.75 per shift, this loss amounts daily to $22,425.

The excessive use of compressed air by workers in poorly ventilated places in an attempt to secure relief constitutes a heavy economic loss. In most of the mines investigated workers were utilizing compressed air in over half the places visited, and it was estimated that in some mines the compressed-air blowers consumed at least 5,000 cubic feet of air per minute. It is a conservative estimate that in the 30 or more large mines of Butte at least 50,000 cubic feet of compressed air per minute was used for blowers, all of which could be eliminated by efficient ventilation. The cost per month in compressing 50,000 cubic feet of air per minute during two eight-hour shifts daily runs well over $30,000. A far greater financial loss, however, is sustained in the decreased efficiency of compressed-air drilling machines through using air at 30 to 40 pounds pressure per square inch. If the drills were the only consumers of compressed air, the working pressure would be 60 to 80 pounds.

The cost of providing adequate ventilation in the mines of Butte can be only roughly estimated. Coal mines are ventilated generally at a cost less than 2 cents per ton of coal produced; on that basis to ventilate the mines of Butte, which produced approximately 6,000,000 tons of ore in 1917 and 1918, would cost $120,000 annually. For a few years at least, however, the cost might run as high as 5 cents per ton, as so little has been done in the past toward providing air currents at working faces; this rate would involve about $300,000 annually, based on the 1917 and 1918 tonnages. Approximately 4,000 horsepower probably would be needed to drive the necessary fans and blowers, at a power cost of $2.50 per horsepower per month, or $120,000 per year; in each of the 30 representative mines there should be at least one man whose entire attention should be devoted to ventilation; their salaries would amount to about $75,000 per year. Repairs, interest, and depreciation on electrical installations would amount to about $100,000 per year.

Summary

1. Temperature and humidity, according to the literature, are the two most important atmospheric conditions that affect the health and efficiency of people in their living and working places.

2. The belief that the ill effects experienced from exposure to crowded conditions in inclosed spaces were generally due to gaseous constituents of the air has been proved false by experiments conducted by numerous investigators. It then was thought that perhaps there were organic poisonous substances exhaled by people; this also has been proved by experimentation to be erroneous and the part played by high temperature and humidity was finally recognized.

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3. Abnormal temperatures and humidities are encountered through seasonal changes in the Temperate Zones and with changing elevations in tropical climates. The large degree of conformity in the mortality curve of the cities and States throughout the world during different periods of time seem clearly to prove that there is some definite relation of weather to disease. The effects of high temperatures encountered in seasonal variation in the Temperate Zones are considered acute, many sudden deaths occurring during certain periods of excessively hot weather, while the effects of exposure to a tropical climate are more chronic.

4. The literature in regard to the action of cold on animals is very meager. Extreme cold seems to be borne better by the human organism than extreme heat; this is partly due to the fact that the effects of cold can be mitigated by artificial control. Explorers in Antarctic regions found that in still weather no temperature was low enough to prevent outdoor work but that it was impossible to exist outside for any length of time at very low temperatures when the wind was blowing.

5. In regard to the relation of sex and age to susceptibility to abnormal atmospheric conditions, women appear to react more readily than men, and children and old persons are more easily affected. Men between 30 and 40 are said to be best adapted to endure the rigors of Arctic exploration.

6. A few of the large number of occupations which require exposure to extreme heat, humidity, and variations in temperature are listed.

7. The source or cause of animal heat was an unsolved mystery to the ancients. They had no thermometers and their knowledge of the constant heat of the human body was imperfect. A scientific attitude toward the subject was developed through contributions from time to time of knowledge obtained by various investigators, who finally determined that animal heat is the result of processes of combustion within the body.

8. It has been determined by observation that there is a limit to the heat-regulating power of the body and that an animal can not live indefinitely in a temperature higher than that of its body; according to Bernard, the larger the mass of the animal the quicker the death. Remaining at rest in saturated air at 91½° F. for one hour with no air movement caused an increase in body temperature.

9. The effects on the human body of abnormal air temperatures are modified by humidity, air motion, exercise, physical condition of persons exposed, food eaten, clothing worn, and individual idiosyncrasy.

(*a*) Humidity increases the discomfort and ill effects of both high and low temperature. Comfort, as determined by both sense and physiological reactions, depends solely upon effective temperature.

At 32° the effective-temperature line coincides with the dry-bulb temperature line; hence, in this particular case, dry-bulb temperature is the only factor in determining comfort. In the comfort zone, comfort depends equally upon wet-bulb and dry-bulb temperatures. At about 132° the effective temperature coincides with the wet-bulb temperature, and for this case the wet-bulb temperature is the only factor. Below 32° the effect of humidity is reversed—that is, the lower the humidity the greater the feeling of warmth.

(*b*) The limiting physiological reaction caused by high temperatures, as determined by comfort, is not body temperature but the pulse rate. When this is above 135 the first symptoms of discomfort arise; when above 160 the effects are severe to distressing.

(*c*) Air movement decreases the discomfort of high temperatures below 98° F.; moving saturated air above 98° F. was found to be of no benefit and, apparently, is even disadvantageous. A thermometric chart is given showing effective temperatures for different air velocities at different temperatures and humidities, as well as for still air conditions.

(*d*) The upper limit in atmospheric conditions at which work can be performed efficiently corresponds to a dry-bulb temperature of 100° and a relative humidity of 30 per cent, or 90° or 95° F. in still saturated air, even when stripped to the waist. The optimum temperature at rest is around 66° F.; and with hard work the optimum temperature is 59.5°; 43° F. was pronounced as too cold with or without air movement, regardless of humidity. In still air no temperature is too low to prevent outdoor work.

(*e*) Normal clothing at ordinary humidity was found to halve the cooling effect of wind as compared with that obtained with the subject stripped to the waist. On the other hand, clothing under certain conditions is advantageous in increasing loss of heat by evaporation and decreasing heat gain by radiation and convection; in fact, man is capable of increasing evaporation materially by suitable clothing. At rest in still air with a temperature of 65° to 70° and with 100 per cent relative humidity, subjects stripped to the waist felt from "slightly cool" to "comfortable"; under these same conditions with moderately hard work, they felt "comfortable." At rest in still air with temperatures from 55° to 60°, 100 per cent relative humidity, clothing was required for comfort, while at moderatly hard work under these conditions the subjects were "comfortable" to "cool" stripped to the waist, and at 45° to 50° subjects working moderately hard felt "cool" stripped to the waist.

10. Death generally takes place when the body temperature is raised to between 109° and 113° F., although no direct statement was found in the literature as to the air conditions and the length of exposure required to raise the body temperature to the fatal point.

The lowest body temperature compatible with life is said to be 78.8° F., although Lefèvre found that a rabbit died when the temperature of the rectum had fallen to between 60° and 65° F.

11. According to one observer, the minimum accident frequency in factory work in both men and women was at 65° and 69° F. At lower air temperatures it gradually increased to a similar extent in men and women till at 50° to 54° it was 35 per cent greater than at 65° to 69°. At temperatures below 49° the frequency fell off slightly. This fall may have been due to the workers being too cold to keep up their usual rate of production. In such a case they would expose themselves to less risk of accident. At temperatures above 65° to 69° the accident frequency showed only a slight rise in the women, but in the men it increased rapidly, and at temperatures above 75° it was 39 per cent greater than at 65° to 69°. Probably this difference was due to the fact that the work of the men was often of a heavier character than that of the women, and the greater the exertion required, the more trying must be the effect of exposure to high temperatures. During the 16 months preceding the installation of the cooling plant in the Morro Velho mine there were 20 fatal accidents, while during the 16 months' period following the installation there were only 6 fatal accidents.

12. It has been found that a moderate increase of temperature—within physiological limits—augments the action of drugs and toxic substances such as carbon monoxide, mustard gas, and lead.

13. A list of the symptoms—subjective and objective—observed by different investigators is given. The most commonly observed subjective symptoms were cramp, headache, pain in the back, dizziness, great thirst, chilliness although the body temperature might be high, diarrhea, restlessness, and insomnia. Chronic exposure to excessive heat results in lowered physical efficiency and diminished resistance to fatigue and disease. The principal objective symptoms noted were changes in body temperature, pulse rate, and blood pressure, increased respiration and body metabolism, and loss of weight. The statement is made by one group of investigators that the pulse rate is probably the best single physiological measure of discomfort due to high temperature.

14. The action of high temperatures on muscular tissue is discussed, especially as a cause of fatigue.

15. The effect of cold on the body temperature up to the point of freezing is given as described in Lefèvre's "law of refrigeration."

16. Measures for the prevention of ill effects of exposure to high temperatures are given under personal hygiene and ventilation and refrigeration of working and living places. The economic value of the proper ventilation and cooling of working places is discussed.

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DEATHS DURING WEEK ENDED MARCH 26, 1927

Summary of information received by telegraph from industrial insurance companies for week ended March 26, 1927, and corresponding week of 1926. (From the Weekly Health Index, March 31, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Mar. 26, 1927	Corresponding week 1926
Policies in force	67, 112, 016	63, 798, 457
Number of death claims	13, 742	16, 239
Death claims per 1,000 policies in force, annual rate	10. 7	13. 3

Deaths from all causes in certain large cities of the United States during the week ended March 26, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 31, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Mar. 26, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Mar. 26, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 26, 1927	Corresponding week 1926	
Total (68 cities)	7, 535	13. 2	[3] 19. 1	765	[3] 1, 219	[4] 64
Akron	31			5	14	54
Albany [5]	35	15. 2	32. 4	4	11	83
Atlanta	79			10	9	
White	38			4	5	
Colored	41	(6)		6	4	
Baltimore [5]	246	15. 7	19. 2	19	30	59
White	197		17. 6	14	25	54
Colored	49	(6)	28. 5	5	5	78
Birmingham	70	17. 0	20. 0	9	12	
White	33		16. 7	5	4	
Colored	37	(6)	25. 1	4	8	
Boston	221	14. 5	24. 2	22	49	61
Bridgeport	42			2	6	37
Buffalo	128	12. 1	23. 5	16	24	67
Cambridge	32	13. 5	18. 4	2	8	36
Camden	33	12. 9	18. 3	5	5	86
Canton	23	10. 6	11. 4	3	6	71
Chicago [5]	747	12. 6	19. 1	76	144	66
Cincinnati	133	16. 8	24. 9	8	15	50
Cleveland	190	10. 1	17. 8	22	49	58
Columbus	93	16. 7	14. 6	10	10	93
Dallas	42	10. 5	12. 6	5	6	
White	30		10. 1	4	3	
Colored	12	(6)	29. 0	1	3	
Dayton	35	10. 1	13. 0	5	8	82
Denver	81	14. 6	13. 7	3	4	
Des Moines	45	15. 7	20. 0	3	2	50
Detroit	309	12. 1	19 2	55	88	87
Duluth	23	10. 4	10. 2	2	1	43
El Paso	20	9. 1	16. 3	3	9	
Erie	26			2	10	39
Fall River [5]	38	14. 9	15. 1	9	4	159
Flint	26	9. 5	15. 3	4	5	65
Fort Worth	36	11. 4	11. 5	2	3	
White	29		11. 2	2	2	
Colored	7	(6)	13. 7	0	1	
Grand Rapids	29	9. 5	18. 4	5	10	73
Houston	60			3	2	
White	47			2	1	
Colored	13	(6)		1	1	
Indianapolis	80	11. 2	15. 8	8	5	63
White	67		15. 3	5	5	45
Colored	13	(6)	19. 0	3	0	183
Jersey City	74	12. 0	18. 7	4	11	30
Kansas City, Kans	32	14. 3	19. 6	2	5	39
White	21		16. 8	2	2	45
Colored	11	(6)	33. 1	0	3	0
Kansas City, Mo	90	12. 3	16. 8	2	12	
Knoxville	36	18. 4		2		
White	25			1		
Colored	11	(6)		1		
Los Angeles	259			15	21	43

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 26, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, March 31, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Mar. 26, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate week ended Mar. 26, 1927 [2]
	Total deaths	Death rate [1]		Week ended Mar. 26, 1927	Corresponding week 1926	
Louisville	82	13.4	22.8	7	15	60
White	56		21.1	2	11	19
Colored	26	(6)	32.2	5	4	350
Lowell	24	11.3	14.2	4	2	77
Lynn	22	10.9	22.1	4	3	106
Memphis	78	22.7	19.7	10	6	
White	34		14.2	5	2	
Colored	44	(6)	29.8	5	4	
Milwaukee	119	11.8	13.1	19	23	89
Minneapolis	93	11.0	12.5	6	12	34
Nashville [5]	54	20.4	32.7	3	13	
White	40		29.3	2	8	
Colored	14	(6)	41.4	1	5	
New Bedford	24	10.5	22.7	5	10	87
New Haven	41	11.6	17.8	4	6	56
New Orleans	166	20.4	20.3	16	10	
White	100		15.0	10	3	
Colored	66	(6)	35.4	6	7	
New York	1,480	12.9	21.7	150	275	62
Bronx Borough	195	11.0	15.6	18	31	57
Brooklyn Borough	475	10.9	20.7	61	99	63
Manhattan Borough	643	18.5	28.7	57	121	67
Queens Borough	132	8.5	14.0	13	19	56
Richmond Borough	35	12.4	23.0	1	5	19
Newark, N. J	116	13.0	16.7	10	13	50
Norfolk	37	10.8	14.1	4	3	81
White	26		8.0	2	2	65
Colored	11	(6)	24.8	2	1	106
Oakland	64	12.5	11.4	5	9	59
Okalhoma City	30			3	0	
Omaha	58	13.8	14.7	7	6	78
Paterson	39	14.1	23.3	1	3	18
Philadelphia	557	14.3	19.6	49	76	65
Pittsburgh	165	13.4	21.8	17	32	59
Portland, Oreg	80			0	2	0
Providence	65	12.1	24.1	8	9	68
Richmond	66	17.9	19.6	7	9	92
White	36		15.2	2	7	40
Colored	30	(6)	30.3	5	2	190
Rochester	77	12.4	19.2	8	8	67
St. Louis	219	13.6	17.2	14	30	
St. Paul	74	15.4	13.5	12	4	109
Salt Lake City [5]	32	12.3	15.3	4	6	61
San Antonio	59	14.6	14.0	7	10	
San Diego	44	20.0	10.4	3	2	64
San Francisco	158	14.3	13.8	6	4	37
Schenectady	19	10.7	21.3	2	3	60
Seattle	76			5	3	52
Somerville	19	9.7	16.7	4	1	144
Spokane	33	15.8	16.3	0	3	0
Springfield, Mass	28	9.9	19.4	5	6	77
Syracuse	51	13.5	27.3	8	9	103
Tacoma	28	13.6	10.3	3	2	71
Toledo	74	12.7	16.1	9	14	87
Trenton	34	12.9	21.4	3	4	52
Washington, D. C	132	12.7	16.6	8	25	46
White	78		12.7	3	17	25
Colored	54	(6)	28.1	5	8	92
Waterbury	23			3	5	71
Wilmington, Del	23	9.5	13.5	0	4	0
Worcester	63	16.8	22.7	14	4	168
Yonkers	32	14.0	14.8	6	5	136
Youngstown	39	12.0	11.1	3	4	42

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 63 cities.
[5] Deaths for week ended Friday, Mar. 25, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth [illegible], Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville [illegible], New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended April 2, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	61
Diphtheria	19
Influenza	230
Lethargic encephalitis	1
Malaria	8
Measles	253
Mumps	51
Pellagra	3
Pneumonia	62
Scarlet fever	19
Smallpox	85
Tuberculosis	46
Typhoid fever	14
Whooping cough	61

ARIZONA

	Cases
Diphtheria	1
Influenza	1
Measles	15
Scarlet fever	9
Trachoma	1
Tuberculosis	51
Whooping cough	1

ARKANSAS

	Cases
Chicken pox	52
Diphtheria	9
Influenza	87
Malaria	31
Measles	230
Mumps	45
Pellagra	10
Scarlet fever	6
Smallpox	3
Trachoma	2
Tuberculosis	14
Typhoid fever	3
Whooping cough	35

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Berkeley	1
Los Angeles County	1
Oakland	1
Sacramento	1
San Francisco	1
San Rafael	1
Scattering	3
Chicken pox	574
Diphtheria	147
Influenza	107
Leprosy—Los Angeles	1
Lethargic encephalitis	2
Measles	3,010
Mumps	351
Poliomyelitis:	
Los Angeles County	1
San Diego County	1
San Francisco	1
Scarlet fever	220
Smallpox	25
Tuberculosis	204
Typhoid fever	10
Whooping cough	198

COLORADO

	Cases
Cerebrospinal meningitis	1
Chicken pox	55
Diphtheria	6
German measles	13
Impetigo contagiosa	1
Measles	426
Mumps	16
Pneumonia	3
Scarlet fever	208
Smallpox	10
Tuberculosis	47
Typhoid fever	2
Whooping cough	10

CONNECTICUT

	Cases
Chicken pox	85
Diphtheria	20
German measles	14
Influenza	11
Lethargic encephalitis	1
Measles	102
Mumps	16
Pneumonia (broncho)	31
Pneumonia (lobar)	50
Poliomyelitis	1
Scarlet fever	94
Septic sore throat	2
Tuberculosis (all forms)	34
Whooping cough	38

DELAWARE

Chicken pox	2
Diphtheria	1
Influenza	3
Measles	5
Pneumonia	2
Scarlet fever	19
Tuberculosis	4
Whooping cough	2

FLORIDA

Chicken pox	64
Diphtheria	20
Influenza	8
Malaria	6
Measles	228
Mumps	22
Pneumonia	3
Scarlet fever	8
Smallpox	84
Tetanus	2
Typhoid fever	12
Whooping cough	35

GEORGIA

Chicken pox	71
Conjunctivitis (infectious)	1
Diphtheria	7
Dysentery	6
Hookworm disease	2
Influenza	299
Malaria	19
Measles	333
Mumps	118
Pellagra	6
Pneumonia	53
Scarlet fever	13
Septic sore throat	4
Smallpox	84
Tetanus	1
Tuberculosis	19
Typhoid fever	8
Whooping cough	39

IDAHO

Chicken pox	7
Diphtheria	2
Measles	91
Mumps	1
Ophthalmia neonatorum	1
Rocky Mountain spotted fever	1
Scarlet fever	26
Smallpox	5
Tuberculosis	2

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	1
Lake County	1
Lee County	1
Chicken pox	300
Diphtheria	123
Influenza	33
Lethargic encephalitis:	
Champaign County	1
Cook County	1
Measles	2,031
Mumps	609
Pneumonia	298
Scarlet fever	331
Smallpox	32
Tuberculosis	218
Typhoid fever	4
Whooping cough	192

INDIANA

Chicken pox	252
Diphtheria	40
Influenza	58
Measles	275
Mumps	4
Pneumonia	9
Scarlet fever	250
Smallpox	213
Tuberculosis	46
Typhoid fever	6
Whooping cough	96

IOWA

Chicken pox	65
Diphtheria	13
Measles	584
Mumps	50
Pneumonia	2
Scarlet fever	72
Smallpox	20
Tuberculosis	7
Whooping cough	21

KANSAS

Cerebrospinal meningitis—Bazine	1
Chicken pox	135
Diphtheria	12
German measles	13
Influenza	11
Measles	1,230
Mumps	64
Pneumonia	47
Ptomaine poisoning	1
Scarlet fever	104
Smallpox	47
Tuberculosis	36
Typhoid fever	2
Whooping cough	69

LOUISIANA

Diphtheria	27
Influenza	19
Malaria	9
Measles	90
Pneumonia	25
Scarlet fever	6
Smallpox	4
Tuberculosis	17
Typhoid fever	19
Whooping cough	17

MAINE

	Cases
Chicken pox	32
Diphtheria	4
German measles	53
Influenza	18
Measles	211
Mumps	14
Pneumonia	15
Scarlet fever	22
Smallpox	[1] 1
Tuberculosis	4
Vincent's angina	7
Whooping cough	46

MARYLAND [2]

	Cases
Chicken pox	137
Diphtheria	56
Dysentery	2
German measles	3
Influenza	136
Measles	58
Mumps	17
Pellagra	1
Pneumonia (broncho)	64
Pneumonia (lobar)	71
Scarlet fever	71
Septic sore throat	1
Tetanus	1
Tuberculosis	62
Typhoid fever	8
Vincent's angina	1
Whooping cough	71

MASSACHUSETTS

	Cases
Chicken pox	226
Conjunctivitis (suppurative)	9
Diphtheria	94
German measles	10
Influenza	17
Lethargic encephalitis	4
Measles	324
Mumps	491
Ophthalmia neonatorum	33
Pneumonia (lobar)	115
Scarlet fever	505
Septic sore throat	2
Tetanus	1
Trachoma	2
Tuberculosis (pulmonary)	86
Tuberculosis (other forms)	26
Typhoid fever	13
Whooping cough	151

MICHIGAN

	Cases
Diphtheria	105
Measles	220
Pneumonia	108
Scarlet fever	318
Smallpox	34
Tuberculosis	70
Typhoid fever	5
Whooping cough	111

MINNESOTA

	Cases
Cerebrospinal meningitis	6
Chicken pox	134
Diphtheria	35

MINNESOTA—continued

	Cases
Measles	281
Pneumonia	4
Scarlet fever	305
Smallpox	4
Tuberculosis	62
Typhoid fever	1
Whooping cough	13

MISSISSIPPI

	Cases
Diphtheria	9
Scarlet fever	13
Smallpox	3
Typhoid fever	10

MISSOURI

	Cases
Cerebrospinal meningitis	4
Chicken pox	83
Diphtheria	58
Epidemic sore throat	4
Influenza	4
Malaria	6
Measles	216
Mumps	67
Ophthalmia neonatorum	1
Pneumonia	5
Rabies (in animals)	6
Scarlet fever	146
Smallpox	19
Trachoma	12
Tuberculosis	47
Typhoid fever	1
Whooping cough	57

MONTANA

	Cases
Cerebrospinal meningitis	1
Chicken pox	35
Diphtheria	4
Measles	49
Mumps	15
Scarlet fever	66
Smallpox	21
Typhoid fever	1

NEBRASKA

	Cases
Chicken pox	47
Diphtheria	6
German measles	149
Measles	327
Mumps	65
Scarlet fever	71
Smallpox	12
Tuberculosis	5
Whooping cough	12

NEW JERSEY

	Cases
Cerebrospinal meningitis	1
Chicken pox	339
Diphtheria	115
Influenza	21
Measles	45
Pneumonia	149
Scarlet fever	365
Typhoid fever	3
Whooping cough	284

[1] Delayed report.

[2] Week ended Friday.

NEW MEXICO

	Cases
Chicken pox	71
Diphtheria	4
German measles	98
Lethargic encephalitis	1
Malaria	2
Measles	63
Mumps	46
Pneumonia	8
Rabies	2
Scarlet fever	23
Smallpox	2
Tuberculosis	26
Whooping cough	9

NEW YORK

(Exclusive of New York City)

	Cases
Cerebrospinal meningitis	1
Chicken pox	397
Diphtheria	67
German measles	229
Lethargic encephalitis	1
Measles	687
Mumps	609
Ophthalmia neonatorum	1
Pneumonia	319
Poliomyelitis	2
Scarlet fever	355
Septic sore throat	6
Smallpox	9
Typhoid fever	8
Vincent's angina	24
Whooping cough	203

NORTH CAROLINA

	Cases
Chicken pox	157
Diphtheria	16
German measles	7
Measles	782
Scarlet fever	29
Small pox	74
Typhoid fever	2
Whooping cough	733

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Chicken pox	26
Diphtheria	11
Influenza	120
Malaria	15
Measles	230
Mumps	12
Pneumonia	71
Smallpox:	
Delaware County	[1] 50
Scattering	37
Typhoid fever	9

OREGON

	Cases
Cerebrospinal meningitis	2
Chicken pox	17
Diphtheria	12
Influenza	93
Measles	238
Mumps	18
Pneumonia	[3] 3
Scarlet fever	45
Smallpox	18
Tuberculosis	9
Typhoid fever	6
Whooping cough	11

PENNSYLVANIA

	Cases
Anthrax—Philadelphia	1
Cerebrospinal meningitis:	
Carlisle	1
Clarion County	1
Philadelphia	1
Pittsburgh	2
Chicken pox	738
Diphtheria	196
German measles	180
Impetigo contagiosa	8
Lethargic encephalitis	2
Measles	962
Mumps	747
Ophthalmia neonatorum	2
Pneumonia	281
Poliomyelitis—Arnold	1
Puerperal fever	1
Scabies	9
Scarlet fever	702
Smallpox	1
Tetanus—Philadelphia	1
Trachoma	1
Tuberculosis	134
Typhoid fever	23
Whooping cough	263

RHODE ISLAND

	Cases
Diphtheria	10
Measles	2
Mumps	3
Ophthalmia neonatorum	1
Pneumonia	2
Scarlet fever	24
Tuberculosis	8
Whooping cough	15

SOUTH CAROLINA

	Cases
Chicken pox	110
Dengue	1
Diphtheria	23
Hookworm disease	25
Influenza	1,978
Malaria	99
Measles	258
Pellagra	67
Poliomyelitis	3
Scarlet fever	3
Smallpox	21
Tuberculosis	53
Typhoid fever	10
Whooping cough	171

SOUTH DAKOTA

	Cases
Actinomycosis	1
Chicken pox	9
Diphtheria	3
Influenza	11
Measles	285

[1] Delayed report.

[3] Deaths.

SOUTH DAKOTA—continued

	Cases
Mumps	13
Pneumonia	7
Scarlet fever	110
Smallpox	15
Tuberculosis	3
Typhoid fever	1
Whooping cough	4

TENNESSEE

Cerebrospinal meningitis:	
Franklin County	1
Rhea County	1
Chicken pox	37
Diphtheria	15
Influenza	229
Malaria	4
Measles	96
Mumps	25
Pellagra	7
Pneumonia	61
Scarlet fever	20
Smallpox	8
Tetanus	1
Tuberculosis	42
Typhoid fever	12
Whooping cough	22

TEXAS

Chicken pox	52
Diphtheria	23
Dysentery	1
Influenza	38
Measles	241
Mumps	49
Pellagra	1
Pneumonia	23
Scarlet fever	19
Smallpox	62
Trachoma	4
Tuberculosis	14
Typhoid fever	1
Whooping cough	42

UTAH

Chicken pox	39
Diphtheria	6
Influenza	7
Measles	67
Mumps	9
Pneumonia	7
Scarlet fever	29
Whooping cough	51

VERMONT

Chicken pox	3
Diphtheria	2
Measles	144
Mumps	53
Scarlet fever	12
Typhoid fever	1
Whooping cough	10

VIRGINIA

Smallpox	2

WASHINGTON

Cerebrospinal meningitis:	
Asotin County	1
Thurston County	2

WASHINGTON—continued

	Cases
Chicken pox	127
Diphtheria	13
German measles	417
Measles	401
Mumps	119
Pneumonia	2
Poliomyelitis	1
Scarlet fever	106
Smallpox	60
Tuberculosis	5
Typhoid fever	7
Whooping cough	54

WEST VIRGINIA

Cerebrospinal meningitis—Nicholas County	1
Chicken pox	73
Diphtheria	21
Influenza	99
Measles	194
Scarlet fever	34
Smallpox	32
Tuberculosis	47
Typhoid fever	4
Whooping cough	180

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	8
Chicken pox	105
Diphtheria	12
German measles	4
Measles	129
Mumps	105
Ophthalmia neonatorum	1
Pneumonia	25
Scarlet fever	44
Tuberculosis	14
Whooping cough	38
Scattering:	
Cerebrospinal meningitis	4
Chicken pox	128
Diphtheria	17
German measles	36
Influenza	50
Measles	614
Mumps	120
Pneumonia	29
Poliomyelitis	2
Scarlet fever	154
Smallpox	9
Tuberculosis	36
Typhoid fever	5
Whooping cough	116

WYOMING

Chicken pox	17
Diphtheria	1
German measles	20
Influenza	1
Measles	81
Mumps	5
Ophthalmia neonatorum	1
Pneumonia	5
Poliomyelitis	1
Scarlet fever	24
Smallpox	1

Reports for Week Ended March 26, 1927

DISTRICT OF COLUMBIA

	Cases
Cerebrospinal meningitis	1
Chicken pox	73
Diphtheria	25
Influenza	5
Measles	9
Pneumonia	34
Scarlet fever	26
Tuberculosis	25
Typhoid fever	1
Whooping cough	17

NORTH DAKOTA

	Cases
Chicken pox	8
Diphtheria	8
Measles	189
Mumps	5
Pneumonia	9
Poliomyelitis	1
Scarlet fever	44
Smallpox	1
Tuberculosis	4

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February, 1927										
Alabama	3	161	344	52	718	19	1	70	224	67
Arkansas	0	24	428	95	80	27	0	49	22	23
Idaho	4	6	1		1,312		1	163	40	6
Kansas	6	79	37		2,458		0	703	197	8
Mississippi	0	56	4,672	2,108	2,323	257	0	101	35	63
Montana	34	28	20		308		1	444	37	1
New York	16	1,583		9	3,343		6	4,135	31	82
North Carolina	2	123			1,427		3	176	259	21
Oregon	5	63	1,817		354		0	214	120	20
Pennsylvania	8	806		2	3,721		0	2,742	1	87
South Dakota	1	14	25		1,103		1	418	23	7
Washington	26	103	107		974		1	492	211	8

February, 1927

	Cases
Anthrax:	
New York	2
Pennsylvania	1
Botulism:	
New York	1
Chicken pox:	
Alabama	222
Arkansas	209
Idaho	57
Kansas	694
Mississippi	842
Montana	122
New York	3,153
North Carolina	865
Oregon	174
Pennsylvania	3,390
South Dakota	107
Washington	443
Conjunctivitis (epidemic):	
Idaho	1
Dengue:	
Alabama	1
Mississippi	7
Dysentery:	
Kansas	2
Mississippi (amoebic)	65
Mississippi (bacillary)	174
Washington	2

February, 1927—Continued

	Cases
German measles:	
Kansas	25
Montana	1
New York	816
North Carolina	85
Pennsylvania	397
Washington	558
Hookworm disease:	
Arkansas	3
Mississippi	242
Impetigo contagiosa:	
Oregon	10
Pennsylvania	61
Washington	1
Lethargic encephalitis:	
Kansas	2
New York	20
Oregon	1
Pennsylvania	4
Washington	1
Mumps:	
Alabama	101
Arkansas	210
Idaho	52
Kansas	242
Mississippi	689
Montana	73
New York	3,303

February, 1927—Continued

	Cases
Mumps—Continued.	
Oregon	101
Pennsylvania	1,449
South Dakota	24
Washington	369
Ophthalmia neonatorum:	
Arkansas	4
Mississippi	7
New York	7
Pennsylvania	16
Paratyphoid fever:	
New York	1
Oregon	1
Pink eye:	
Kansas	7
Puerperal septicemia:	
Mississippi	34
New York	11
Pennsylvania	1
Rabies in animals:	
Idaho	1
Mississippi	15
New York	16
Oregon	2
Rabies in man:	
Pennsylvania	1
Rocky Mountain spotted or tick fever:	
Idaho	1
Septic sore throat:	
Kansas	2
New York	21
North Carolina	15
Oregon	4
Washington	1

February, 1927—Continued

	Cases
Scabies:	
Idaho	2
Oregon	20
Pennsylvania	31
Tetanus:	
Kansas	1
New York	3
Pennsylvania	1
Trachoma:	
Arkansas	2
Mississippi	17
New York	3
Pennsylvania	2
Washington	2
Trichinosis:	
Pennsylvania	4
Typhus fever:	
Alabama	1
New York	1
Vincent's angina:	
Idaho	1
New York	70
Whooping cough:	
Alabama	205
Arkansas	198
Idaho	34
Kansas	296
Mississippi	1,595
Montana	6
New York	1,618
North Carolina	2,612
Oregon	58
Pennsylvania	1,231
South Dakota	38
Washington	73

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 29,900,000. The estimated population of the 90 cities reporting deaths is more than 29,340,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 19, 1927, and March 20, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	1,339	1,710	
95 cities	690	994	907
Measles:			
39 States	19,648	14,503	
95 cities	10,367	5,239	
Poliomyelitis:			
41 States	18	14	
Scarlet fever:			
41 States	4,523	6,081	
95 cities	1,714	2,543	1,288
Smallpox:			
41 States	959	1,032	
95 cities	210	176	143
Typhoid fever:			
41 States	144	221	
95 cities	33	41	42
Deaths reported			
Influenza and pneumonia:			
90 cities	2,496	1,203	
Smallpox:			
90 cities	11	1	
Atlanta	0	1	
Los Angeles	8	0	
Sacramento	1	0	
San Francisco	2	0	

City reports for week ended March 19, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	11	1	0	0	0	1	0	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	20	0	0
Manchester	83,097	0	2	0	0	1	0	0	4
Vermont:									
Barre	10,008	0	0	0	0	0	0	8	0
Burlington	24,089	1	0	0	0	0	9	1	0
Massachusetts:									
Boston	779,620	67	58	35	4	2	58	111	33
Fall River	128,993	3	4	3	1	0	1	3	7
Springfield	142,065	7	3	3	1	1	1	2	3
Worcester	190,757	13	4	2	0	0	0	3	4
Rhode Island:									
Pawtucket	69,760	4	1	1	0	0	0	1	6
Providence	267,918	0	9	7	0	4	0	0	8
Connecticut.									
Bridgeport	(1)	2	7	7	0	0	10	3	3
Hartford	160,197	1	8	0	0	1	0	4	4
New Haven	178,927	31	3	1	0	0	0	5	5
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	27	11	47	--------	1	5	17	29
New York	5,873,356	363	203	313	82	33	46	456	242
Rochester	316,786	3	10	7	--------	0	17	4	6
Syracuse	182,003	29	7	2	--------	0	12	10	2
New Jersey:									
Camden	128,642	10	4	18	1	1	2	1	13
Newark	452,513	81	17	4	16	3	5	85	19
Trenton	132,020	2	4	2	3	1	1	0	4
Pennsylvania:									
Philadelphia	1,979,364	113	74	63	--------	18	28	152	104
Pittsburgh	631,563	105	19	30	--------	7	71	7	37
Reading	112,707	13	3	2	--------	0	2	45	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	12	9	8	0	2	1	18	10
Cleveland	936,485	106	25	35	3	4	9	61	24
Columbus	279,836	15	3	10	0	3	9	1	8
Toledo	287,380	14	5	4	1	0	28	5	3
Indiana:									
Fort Wayne	97,846	--------	3	--------	--------	--------	--------	--------	--------
Indianapolis	358,819	77	7	2	0	2	22	26	18
South Bend	80,091	5	1	0	0	0	29	0	0
Terre Haute	71,071	5	1	0	0	0	23	0	1
Illinois:									
Chicago	2,995,239	116	86	92	35	10	1,384	180	79
Peoria	81,564	2	0	0	0	0	30	3	4
Springfield	63,923	6	1	1	0	0	74	3	0
Michigan:									
Detroit	1,245,824	139	55	51	10	5	22	195	41
Flint	130,316	38	4	3	0	0	7	1	7
Grand Rapids	153,098	3	3	1	0	0	1	0	0

City reports for week ended March 19, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	6	2	0	0	0	128	31	2
Madison	46,385	19	1	0	0	0	15	1	1
Milwaukee	509,192	107	16	28	1	1	78	79	20
Racine	67,707	8	2	0	0	0	22	31	1
Superior	39,671	1	0	3	0	0	3	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	5	1	0	0	1	52	0	2
Minneapolis	425,435	94	15	11	0	3	1	2	9
St. Paul	246,001	34	14	0	0	0	21	2	12
Iowa:									
Davenport	52,469	1	1	2	0	------	7	0	------
Sioux City	76,411	9	1	1	0	------	38	20	------
Waterloo	36,771	0	0	0	0	------	145	0	------
Missouri:									
Kansas City	367,481	41	7	6	0	3	83	7	11
St. Joseph	78,342	4	1	0	0	0	20	0	3
St. Louis	821,543	35	41	40	0	0	42	55	------
North Dakota:									
Fargo	26,403	11	1	1	0	1	204	5	2
Grand Forks	14,811	0	0	0	0	------	0	0	------
South Dakota:									
Aberdeen	15,036	4	0	0	0	------	120	0	------
Sioux Falls	30,127	0	1	0	0	------	2	0	------
Nebraska:									
Lincoln	60,941	14	1	3	0	0	48	3	0
Omaha	211,768	14	4	3	1	1	111	61	10
Kansas:									
Topeka	55,411	15	1	0	1	1	59	0	2
Wichita	88,367	26	2	2	0	0	9	0	4
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	2	0	0	0	0	0	2
Maryland:									
Baltimore	796,296	94	26	29	156	14	3	5	67
Cumberland	33,741	0	1	1	20	1	0	0	1
Frederick	12,035	1	0	0	2	0	0	8	0
District of Columbia:									
Washington	497,906	65	12	28	10	6	2	0	13
Virginia:									
Lynchburg	30,395	30	0	3	0	1	23	0	3
Norfolk	(1)	------	1	------	------	------	------	------	------
Richmond	186,403	1	3	1	0	0	216	0	8
Roanoke	58,208	7	1	1	0	5	2	0	5
West Virginia:									
Charleston	49,019	8	0	1	1	2	1	0	2
Wheeling	56,208	3	1	0	0	0	18	0	2
North Carolina:									
Raleigh	30,371	19	0	0	0	0	0	0	1
Wilmington	37,061	3	0	0	0	0	1	10	0
Winston-Salem	69,031	4	1	1	0	5	2	18	5
South Carolina:									
Charleston	73,125	2	0	1	61	0	23	0	1
Columbia	41,225	------	1	------	------	------	------	------	------
Greenville	27,311	1	0	0	2	0	0	0	1
Georgia:									
Atlanta	(1)	5	2	4	123	8	42	4	17
Brunswick	16,809	0	0	0	0	0	2	5	1
Savannah	93,134	5	1	5	46	0	0	0	1
Florida:									
Miami	69,754	26	4	3	0	0	0	7	3
St. Petersburg	26,847	------	0	------	------	0	------	------	3
Tampa	94,743	6	1	1	2	0	115	0	4

[1] No estimate made.

City reports for week ended March 19, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309		0						
Louisville	305,935	4	5	1	5	0	0	3	12
Tennessee:									
Memphis	174,533	18	5	1	0	8	2	4	15
Nashville	136,220	5	1	0	0	1	1	3	2
Alabama:									
Birmingham	205,670	6	2	2	8	6	17	3	5
Mobile	65,955	2	1	0	0	2	40	1	1
Montgomery	46,481	6	0	0	3	0	27	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	7	1	0	0		44	3	2
Little Rock	74,216	2	1	1	0	1	8	0	2
Louisiana:									
New Orleans	414,493	1	8	9	6	4	100	0	19
Shreveport	57,857	4	1	0	0	0	0	14	0
Oklahoma:									
Oklahoma City	(1)	12	1	0	0	0	4	0	3
Texas:									
Dallas	194,450	22	4	8	0	0	92	0	6
Galveston	48,375	0	0	2	0	0	0	0	0
Houston	164,954	4	2	10	0	0	1	1	10
San Antonio	198,069	1	2	9	0	0	3	0	7
MOUNTAIN									
Montana:									
Billings	17,971	6	0	0	0	0	2	0	0
Great Falls	29,883	11	1	1	0	0	9	0	1
Helena	12,037	1	0	0	0	0	0	0	2
Missoula	12,668	0	0	0	0	0	1	22	0
Idaho:									
Boise	23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	280,911	20	8	2		2	527	0	7
Pueblo	43,787	3	1	3	0	0	24	0	4
New Mexico:									
Albuquerque	21,000	3	1	0	2	0	29	30	0
Arizona:									
Phoenix	38,669	1	0	3	0	0	4	0	1
Utah:									
Salt Lake City	130,948	10	3	6	1	0	39	1	4
Nevada:									
Reno	12,665	0	0	2	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	49	5	4	0		42	75	
Spokane	108,897	4	2	2	0		20	0	
Tacoma	104,455	0	1	1	0	0	47	1	5
Oregon:									
Portland	282,383	18	6	7	3	0	43	1	5
California:									
Los Angeles	(1)	54	40	44	45	2	823	16	15
Sacramento	72,260	2	1	1	1	1	24	4	2
San Francisco	557,530	40	21	11	4	1	163	106	5

1 No estimate made.

City reports for week ended March 19, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	4	1	0	0	0	0	0	0	0	6	15
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	1	2
Manchester	3	0	0	0	0	1	0	0	0	0	11
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	5
Burlington	1	1	0	0	0	1	0	0	0	2	8
Massachusetts:											
Boston	73	157	0	0	0	14	1	2	0	26	262
Fall River	4	4	0	0	0	1	0	0	0	1	40
Springfield	7	5	0	0	0	4	0	0	0	2	29
Worcester	9	12	0	0	0	7	1	0	0	23	53
Rhode Island:											
Pawtucket	2	3	0	0	0	0	1	0	0	2	21
Providence	9	14	0	0	0	2	1	0	0	2	70
Connecticut:											
Bridgeport	12	17	0	0	0	1	0	0	0	0	23
Hartford	6	13	0	0	0	6	0	0	0	3	43
New Haven	11	9	0	0	0	1	0	0	0	0	36
MIDDLE ATLANTIC											
New York:											
Buffalo	22	20	0	0	0	10	0	0	0	17	184
New York	278	871	1	0	0	[1] 121	7	7	1	106	1,621
Rochester	16	22	0	0	0	3	0	2	0	2	72
Syracuse	14	6	0	1	0	2	0	0	0	8	36
New Jersey:											
Camden	5	5	0	0	0	2	1	0	0	2	44
Newark	26	65	0	0	0	17	0	0	0	34	125
Trenton	5	2	0	0	0	3	1	0	0	3	33
Pennsylvania:											
Philadelphia	79	144	1	0	0	54	3	1	0	22	658
Pittsburgh	31	26	0	0	0	12	0	1	0	12	184
Reading	4	1	0	0	0	1	1	1	0	0	29
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	40	2	0	0	14	1	2	0	6	184
Cleveland	44	54	0	0	0	7	1	0	0	22	190
Columbus	12	16	3	0	0	3	1	0	0	11	72
Toledo	15	17	5	0	0	7	0	0	0	51	76
Indiana:											
Ft. Wayne	5	-------	2	-------	-------	-------	1	-------	-------	-------	-------
Indianapolis	10	23	12	33	0	3	0	0	0	18	102
South Bend	3	1	1	0	0	0	0	0	0	1	15
Terre Haute	3	1	1	4	0	0	0	0	0	0	15
Illinois:											
Chicago	124	139	4	4	0	50	3	0	0	70	734
Peoria	4	0	1	0	0	0	0	0	0	2	17
Springfield	2	1	0	0	0	0	0	0	0	1	19
Michigan:											
Detroit	92	137	2	1	0	26	1	3	1	81	336
Flint	6	33	1	7	0	0	0	1	0	0	33
Grand Rapids	10	13	1	0	0	0	1	0	0	2	20
Wisconsin:											
Kenosha	3	2	1	0	0	0	0	0	0	3	8
Madison	3	10	0	0	0	1	0	0	0	23	7
Milwaukee	29	58	3	0	0	6	0	0	0	30	125
Racine	4	2	0	0	0	0	1	0	0	15	8
Superior	3	5	5	0	0	0	0	0	0	0	9

[1] Pulmonary tuberculosis only.

City reports for week ended March 19, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	6	1	0	0	2	0	0	0	2	26
Minneapolis	45	56	8	0	0	2	0	0	0	3	89
St. Paul	33	49	6	0	0	2	0	0	0	12	67
Iowa:											
Davenport	2	4	2	0	...	...	0	0	...	0	...
Sioux City	2	9	1	0	...	...	0	0	...	4	...
Waterloo	2	0	0	0	...	...	0	0	...	1	...
Missouri:											
Kansas City	11	22	2	13	0	7	0	0	0	9	117
St. Joseph	2	9	0	3	0	1	0	0	0	2	26
St. Louis	31	38	5	2	0	6	1	0	0	32	232
North Dakota:											
Fargo	2	10	0	0	0	0	1	0	0	0	15
Grand Forks	1	5	0	0	...	...	0	0	...	0	...
South Dakota:											
Aberdeen	4	4	0	0	...	...	0	0	...	0	...
Sioux Falls	2	3	0	0	...	...	0	0	...	0	...
Nebraska:											
Lincoln	3	3	0	0	0	0	0	0	0	5	12
Omaha	4	12	9	2	0	4	0	0	0	0	61
Kansas:											
Topeka	3	1	1	5	0	2	0	0	0	13	23
Wichita	2	3	2	0	0	0	0	0	0	2	35
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	26	0	0	0	2	0	0	1	5	28
Maryland:											
Baltimore	37	41	0	0	0	19	2	1	0	79	302
Cumberland	1	0	0	0	0	0	1	0	0	0	11
Frederick	0	2	0	0	0	0	0	0	0	0	3
District of Columbia:											
Washington	26	29	1	0	0	8	1	1	0	31	167
Virginia:											
Lynchburg	1	0	0	0	0	0	0	0	0	3	12
Norfolk	2	...	1	...	...	...	0	...	...	...	...
Richmond	3	3	1	0	0	4	0	0	0	3	61
Roanoke	1	3	1	1	0	1	0	0	1	1	20
West Virginia:											
Charleston	0	1	1	2	0	2	0	1	0	0	19
Wheeling	2	3	0	0	0	2	1	0	0	1	17
North Carolina:											
Raleigh	0	2	0	0	0	1	0	0	1	50	15
Wilmington	0	1	0	0	0	0	0	0	0	28	11
Winston-Salem	0	3	5	0	0	2	0	1	0	36	30
South Carolina:											
Charleston	1	0	0	0	0	1	0	0	0	4	23
Columbia	1	...	1	...	...	...	0	...	...	...	...
Greenville	0	0	0	0	0	0	0	0	0	1	5
Georgia:											
Atlanta	4	5	3	18	1	7	0	0	0	7	...
Brunswick	0	0	0	0	0	1	0	0	0	0	3
Savannah	1	0	0	6	0	2	0	0	0	1	31
Florida:											
Miami	3	4	...	0	0	0	1	0	0	8	39
St. Petersburg	1	...	0	...	0	0	0	...	0	...	23
Tampa	0	0	0	0	0	2	1	2	1	0	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	...	1	...	...	...	0	...	...	...	...
Louisville	5	15	1	3	0	2	0	2	0	82	82
Tennessee:											
Memphis	4	19	3	9	0	5	1	0	0	18	88
Nashville	3	1	2	0	0	1	0	1	0	6	28
Alabama:											
Birmingham	2	4	9	7	0	3	1	0	0	3	73
Mobile	1	0	2	0	0	2	0	1	0	0	16
Montgomery	6	0	1	7	0	0	0	0	0	15	27

City reports for week ended March 19, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	1	0	------	------	0	0	------	10	15
Little Rock	1	0	1	0	0	4	1	0	0	4	------
Louisiana:											
New Orleans	6	1	3	0	0	15	2	2	1	6	188
Shreveport	1	1	1	1	0	3	0	0	0	0	23
Oklahoma:											
Oklahoma City	2	0	4	5	0	0	1	0	0	0	21
Texas:											
Dallas	2	6	6	7	0	3	1	0	0	8	40
Galveston	0	0	0	0	0	2	0	0	0	0	18
Houston	1	4	1	3	0	3	0	0	0	1	55
San Antonio	1	3	0	0	0	13	0	1	0	1	56
MOUNTAIN											
Montana:											
Billings	0	2	0	0	0	0	0	0	0	0	6
Great Falls	1	8	1	0	0	1	0	0	0	0	9
Helena	0	0	0	0	0	0	0	0	0	0	4
Missoula	0	13	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	1	2	1	0	0	0	0	0	0	0	3
Colorado:											
Denver	15	106	2	1	0	8	0	0	0	1	86
Pueblo	1	7	0	0	0	0	0	0	1	0	14
New Mexico:											
Albuquerque	1	2	0	0	0	4	0	0	0	0	10
Arizona:											
Phoenix	0	1	0	0	0	14	0	0	0	0	33
Utah:											
Salt Lake City	3	11	1	9	0	4	0	1	0	10	44
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	11	14	4	2	------	------	0	1	------	28	------
Spokane	5	29	4	13	------	------	0	0	------	2	------
Tacoma	3	2	3	15	0	0	0	0	0	0	31
Oregon:											
Portland	6	10	9	5	0	0	1	0	0	1	54
California:											
Los Angeles	24	28	6	0	0	31	1	4	0	20	270
Sacramento	2	0	1	1	0	3	0	2	0	0	20
San Francisco	14	24	6	1	0	7	1	0	2	22	139

City reports for week ended March 19, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	3	0	0	0	0	0	0	0
Rhode Island:									
Providence	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	4	3	2	4	0	0	1	0	0
Syracuse	1	0	0	0	0	0	0	0	0
New Jersey:									
Trenton	0	0	0	0	0	0	0	1	1
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	2	0
Pittsburgh	0	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	3	1	0	0	0	0	0	0	0
Illinois:									
Chicago	1	0	1	0	0	0	0	0	0
Michigan:									
Detroit	0	0	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee	5	2	0	0	0	0	0	0	0
Racine	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	0	0	0	1	0	0	0	0	0
Missouri:									
St. Louis	4	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	0	1	2	0	0	0	0
Georgia:[1]									
Atlanta	0	0	0	0	0	1	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	1	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	0	1	0	0	0	0	0	0	0
MOUNTAIN									
Colorado:									
Denver	0	0	0	1	0	0	0	0	0
New Mexico:									
Albuquerque	1	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	3	1	0	1	0	0	0	0	0
Sacramento	1	1	0	0	0	0	0	0	0
San Francisco	0	1	0	0	0	0	0	0	0

[1] Typhus fever: 1 death at Savannah, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended March 19, 1927, compared with those for a like period ended March 20, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, February 13 to March 19, 1927. Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
101 cities	137	204	134	179	[2] 124	182	[3] 114	[4] 186	120	[5] 173
New England	116	132	101	149	94	163	78	128	127	137
Middle Atlantic	132	277	119	200	111	224	113	231	126	[6] 230
East North Central	134	169	141	198	123	177	[3] 107	[1] 166	98	[7] 158
West North Central	206	165	246	109	[2] 241	115	216	[8] 148	147	[9] 130
South Atlantic	104	192	73	192	108	196	86	156	69	[10] 149
East South Central	57	87	52	117	47	82	26	[11] 116	26	[12] 22
West South Central	90	172	116	197	103	151	103	193	103	164
Mountain	219	162	210	72	73	234	109	[13] 215	73	126
Pacific	204	188	214	152	188	134	147	199	281	165

MEASLES CASE RATES

	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
101 cities	1,995	784	2,066	843	[2] 1,884	858	[3] 1,680	[4] 784	1,783	[5] 911
New England	2,703	181	2,184	228	2,441	172	1,964	197	1,722	211
Middle Atlantic	1,917	69	2,044	75	1,843	68	1,716	80	1,858	[6] 96
East North Central	2,933	890	3,094	930	2,695	1,078	[3] 2,135	[3] 1,104	1,994	[7] 1,150
West North Central	676	566	901	963	[2] 842	955	1,603	[8] 1,193	1,892	[9] 1,480
South Atlantic	3,248	795	3,269	654	2,675	797	2,248	786	2,772	[10] 942
East South Central	957	469	1,231	464	1,319	540	1,407	[11] 360	2,260	[12] 470
West South Central	9	570	9	600	17	730	39	1,204	43	1,040
Mountain	137	9,691	82	10,653	210	8,154	337	[13] 1,828	328	5,412
Pacific	201	2,780	161	2,872	276	3,037	324	3,259	319	2,030

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.

[2] Kansas City, Mo., not included.

[3] Madison, Wis., not included.

[4] Madison, Wis., Kansas City, Mo., Fargo., N. Dak., Covington, Ky., Mobile, Ala., and Denver, Colo., not included.

[5] Buffalo, N. Y., Fort Wayne, Ind., Topeka, Kans., Norfolk, Va., Columbia, S. C., and Covington, Ky., not included.

[6] Buffalo, N. Y., not included.

[7] Fort Wayne, Ind., not included.

[8] Kansas City, Mo., and Fargo, N. Dak., not included.

[9] Topeka, Kans., not included.

[10] Norfolk, Va., and Columbia, S. C., not included.

[11] Covington, Ky., and Mobile, Ala., not included.

[12] Covington, Ky., not included.

[13] Denver, Colo., not included.

Summary of weekly reports from cities, February 13 to March 19, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SCARLET FEVER CASE RATES

	Week ended—									
	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
101 cities	300	430	285	424	[2] 289	419	[3] 303	[4] 436	300	[5] 442
New England	361	469	354	541	347	423	333	590	403	546
Middle Atlantic	208	582	187	532	185	533	192	585	202	[6] 594
East North Central	372	323	340	365	346	398	[3] 371	[3] 364	340	[7] 361
West North Central	782	542	706	447	[2] 807	445	903	[8] 482	815	[9] 434
South Atlantic	149	250	199	219	162	181	149	194	156	[10] 234
East South Central	243	245	171	183	186	219	140	[11] 296	145	[12] 211
West South Central	107	67	112	117	90	67	112	122	137	63
Mountain	237	1,250	100	1,196	337	1,079	219	[13] 573	246	1,340
Pacific	330	340	311	314	311	330	249	285	279	254

SMALLPOX CASE RATES

	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
101 cities	41	33	41	25	[2] 50	22	[3] 40	[4] 28	36	[5] 31
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	[6] 1
East North Central	33	28	18	15	23	21	[3] 19	[3] 34	26	[7] 33
West North Central	65	81	79	64	[2] 61	54	67	[8] 31	50	[9] 41
South Atlantic	50	60	65	45	99	53	48	54	60	[10] 53
East South Central	103	132	52	71	67	122	67	[11] 93	83	[12] 141
West South Central	142	63	133	50	198	50	142	71	137	46
Mountain	36	27	46	0	36	0	18	[13] 0	64	90
Pacific	193	94	244	105	300	13	260	94	163	84

TYPHOID FEVER CASE RATES

	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
101 cities	7	9	5	8	[2] 10	9	[3] 8	[4] 8	6	[5] 7
New England	7	2	5	9	12	2	5	12	0	5
Middle Atlantic	4	10	2	1	4	5	7	8	4	[6] 6
East North Central	5	4	1	6	5	6	[3] 4	[3] 1	3	[7] 4
West North Central	6	10	2	8	[2] 0	10	4	[8] 5	2	[9] 0
South Atlantic	4	24	11	29	6	24	7	11	20	[10] 12
East South Central	5	31	10	25	10	41	5	[11] 35	21	[12] 22
West South Central	21	8	30	4	39	8	4	17	9	13
Mountain	18	0	18	18	146	9	146	[13] 0	9	9
Pacific	16	3	8	8	16	8	0	10	5	18

[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[4] Madison, Wis., Kansas City, Mo., Fargo, N. Dak., Covington, Ky., Mobile, Ala., and Denver, Colo., not included.
[5] Buffalo, N. Y., Fort Wayne, Ind., Topeka, Kans., Norfolk, Va., Columbia, S. C., and Covington, Ky., not included.
[6] Buffalo, N. Y., not included.
[7] Fort Wayne, Ind., not included.
[8] Kansas City, Mo., and Fargo, N. Dak., not included.
[9] Topeka, Kans., not included.
[10] Norfolk, Va., and Columbia, S. C., not included.
[11] Covington, Ky., and Mobile, Ala., not included.
[12] Covington, Ky., not included.
[13] Denver, Colo., not included.

Summary of weekly reports from cities, February 13 to March 19, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
95 cities	50	23	46	22	[2] 51	25	[3] 71	[14] 27	76	[15] 31
New England	2	9	19	12	12	9	24	12	45	19
Middle Atlantic	27	25	39	22	68	24	105	25	95	[6] 33
East North Central	11	19	14	17	14	23	[3] 32	[3] 16	65	[7] 18
West North Central	19	23	23	10	[2] 5	17	36	[8] 12	32	[9] 19
South Atlantic	138	31	96	42	47	48	78	72	51	[16] 82
East South Central	160	41	134	41	259	20	197	[11] 81	222	[12] 92
West South Central	278	39	212	26	124	39	97	47	146	22
Mountain	109	27	100	54	109	54	146	54	46	18
Pacific	95	17	35	17	32	17	21	7	18	14

PNEUMONIA DEATH RATES

	Feb. 20, 1926	Feb. 19, 1927	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927
95 cities	259	146	259	164	[2] 269	172	[3] 326	[14] 189	372	[15] 182
New England	175	102	165	183	186	202	217	188	356	172
Middle Atlantic	290	149	317	177	358	193	461	223	504	[6] 224
East North Central	181	120	179	146	206	134	[3] 289	[3] 159	355	[7] 143
West North Central	127	91	108	91	[2] 97	104	148	[8] 70	140	[9] 113
South Atlantic	490	239	454	257	342	234	303	278	352	[16] 263
East South Central	295	168	300	117	310	260	388	[11] 186	398	[12] 189
West South Central	516	207	353	164	362	185	238	159	260	190
Mountain	173	189	410	135	237	126	301	171	201	162
Pacific	173	176	141	131	117	121	92	148	99	93

[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[6] Buffalo, N. Y., not included.
[7] Fort Wayne, Ind., not included.
[8] Kansas City, Mo., and Fargo, N. Dak., not included.
[9] Topeka, Kans., not included.
[11] Covington, Ky., and Mobile, Ala., not included.
[12] Covington, Ky., not included.
[14] Madison, Wis., Kansas City, Mo., Fargo, N. Dak., Covington, Ky., and Mobile, Ala., not included.
[15] Buffalo, N. Y., Fort Wayne, Ind., Topeka, Kans., Norfolk, Va., and Covington, Ky., not included
[16] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended March 12, 1927.—The following report for the week ended March 12, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Arabia: Kamaran	0	0	0	0	1	0	Siam: Bangkok	0	0	19	9	6	3
Ceylon: Colombo	3	2	0	0	0	0	French Indo-China:						
British India:							Saigon	0	0	0	0	1	0
Karachi	----	0	----	0	1	0	Hongkong	0	0	0	0	4	1
Bombay	----	2	----	0	52	31	U. S. S. R.: Vladivostok	0	0	0	0	2	0
Calcutta	----	0	----	41	238	179	Manchuria:						
Rangoon	----	0	----	1	30	6	Mukden	0	0	0	0	1	0
Madras	----	0	----	1	20	----	Changchun	0	0	0	0	1	0
Negapatam	----	0	----	0	3	2	Kwantung: Dairen	0	0	0	0	2	1
Tuticorin	----	0	----	0	3	0	Kenya: Mombasa	0	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Vizagapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Pandang, Palembang, Balikpapan, Surabaya, Makassar, Samarinda.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Tourane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai.

Macao.

Formosa.—Keelung.

Chosen.—Chemulpo, Fusan.

Manchuria.—Harbin, Antung, Yingkow.

Kwantung.—Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—Saint Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga, Tamatave.

Reports had not been received in time for publication from:

Dutch East Indies.—Tarakan.

Movement of infected ships:

Penang.—The S. S. *Ekma* arrived from Rangoon on March 6 infected with cholera.

Sandakan.—The S. S. *Tanda* arrived on March 13 from the Philippine Islands infected with smallpox.

The S. S. *Mausang* arrived on the same date from Hongkong also infected with smallpox.

Belated information:

Week ending March 5. Pondicherry and Karikal were free from plague, cholera, and smallpox.

CANADA

Communicable diseases—Week ended March 19, 1927.—The Canadian ministry of health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended March 19, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever						2		2
Influenza	27			6				33
Poliomyelitis				1				1
Smallpox				20			27	47
Typhoid fever		1	471	10	1			483

Vital statistics—Quebec—January, 1927.—Births and deaths in the Province of Quebec for the month of January, 1927, were reported as follows:

Estimated population	2,604,000
Births	5,641
Birth rate per 1,000 population	25.99
Deaths (all causes)	3,006
Death rate per 1,000 population	13.85
Deaths under 1 year	920
Infant mortality rate	163.09
Deaths from—	
Accidents (all)	132
Cancer	125
Cerebrospinal meningitis	12
Diabetes	24
Deaths from—Continued.	
Diphtheria	52
Heart disease	374
Influenza	107
Measles	58
Pneumonia	378
Scarlet fever	15
Syphilis	9
Tuberculosis (pulmonary)	191
Tuberculosis (other forms)	46
Typhoid fever	26
Whooping cough	62

Typhoid fever—Montreal.—Information from the Canadian health authorities dated April 2 shows that from March 1 to April 1, 1927, inclusive, 1,750 cases of typhoid fever were reported in Montreal, Quebec, Canada. The number of cases was stated to be diminishing. An investigation to determine the source of the infection is being carried on. Pasteurization of milk in plants is carefully controlled by the health authorities.

GREAT BRITAIN (SCOTLAND)

Smallpox—Dundee—March 31, 1927.—Under date of March 31, 1927, 42 cases of smallpox were reported at Dundee, Scotland.

HAWAII TERRITORY

Rodent operations—Island of Hawaii—February, 1927.—During the month of February, 1927, rodent operations in the island of Hawaii were reported as follows:

Rodents exterminated	11,859
Rodents examined	10,868
Rodents found plague infected	0
Human plague	0

Last case of rodent plague, July 24, 1926; last case of human plague, October 6, 1926.

JAMAICA

Smallpox (Alastrim)—February 6–March 12, 1927.—During the period February 6 to March 12, 1927, 50 cases of smallpox, reported as alastrim, were notified in the Island of Jamaica, exclusive of Kingston.

Other communicable diseases.—During the same period other communicable diseases were reported in the Island of Jamaica as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis		1	Septicemia	1	
Chicken pox	1	34	Tuberculosis	10	48
Dysentery	2	13	Typhoid fever	13	77
Puerperal fever		1			

Population: Island—estimated—916,620; Kingston—census—62,707.

MALTA

Communicable diseases—February 1–28, 1927.—During the month of February, 1927, communicable diseases were reported in the Island of Malta as follows:

Disease	Cases	Disease	Cases
Bronchopneumonia	12	Pneumonia	6
Chicken pox	3	Scarlet fever	2
Diphtheria	6	Trachoma	60
Erysipelas	3	Tuberculosis	20
Influenza	12	Typhoid fever	61
Lethargic encephalitis	1	Whooping cough	84
Malta fever	38		

Population—civil—estimated: 225,242.

MAURITIUS

Plague—December, 1926.—During the month of December, 1926, 22 cases of plague with 20 deaths were reported in the Island of Mauritius, occurring in the district of Pamplemousses, with three cases and three deaths, and in the town of Port Louis, with 19 cases and 17 deaths.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State—January 31–February 12, 1927—Cape Province.—A suspected outbreak at Vaalbank, Glen Grey district, reported for the week ended February 5, 1927, was confirmed for plague with a total to February 12, from date of outbreak, of eight fatal cases, in natives. *Orange Free State.*—In the Vredefort district, one case in a European and one fatal case in native, occurring on two farms; in Hoopstad district, one fatal case, native, on farm in Bultfontein area.

Smallpox—Typhus fever.—Fresh outbreaks of smallpox were reported in the Cape Province, in Wodehouse district, during the two weeks ended February 12, 1927. In the Orange Free State, in Frankfort district, typhus fever was reported present during the week ended February 12, 1927.

YUGOSLAVIA

Communicable diseases—February, 1927.—During the month of February, 1927, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	12		Rabies	3	3
Cerebrospinal meningitis	7	5	Scarlet fever	377	70
Diphtheria	121	32	Tetanus	6	5
Dysentery	9	1	Typhoid fever	183	15
Influenza	146,784	633	Typhus fever	22	1
Lethargic encephalitis	1	1	Whooping cough	248	6
Measles	1,308	22			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended April 8, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Calcutta	Feb. 6–12	37	27	
Rangoon	do	8	8	
Siam	do			Feb. 6–12, 1927: Cases, 58; deaths, 43. Apr. 1, 1926–Feb. 12, 1927: Cases, 8,040; deaths, 5,306.
Bangkok	do	7	3	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 8, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Ceylon:				
Colombo	Feb. 13-19	3		1 plague rodent.
India:				
Madras Presidency	Jan. 30-Feb. 5	72	49	
Rangoon	Feb. 6-12	4	4	
Java:				
Batavia	do	34	32	Province.
East Java and Madura	Jan. 21-27	1	1	
Madagascar				Jan. 1-15, 1927: Cases, 160; deaths, 153. Bubonic, cases 108; pneumonic, 25; septicemic, 27.
Ambositra Province	Jan. 1-15	9	9	
Antisirabe town	do	5	5	
Diego-Suarez Province	do	4	4	
Itasy Province	do	8	8	
Moramanga Province	do	29	27	
Tananarive Town	do	1	1	
Tananarive Province	do	104	99	
Mauritius				December, 1926: Cases, 22; deaths, 20.
Pamplemousses district	Dec. 1-31	3	3	
Port Louis	do	19	17	
Siam				Feb. 6-12, 1927: Cases, 2; deaths, 1. Apr. 1, 1926-Feb. 12, 1927: Cases, 37; deaths, 27.
Syria:				
Beirut	Feb. 1-10	1		
Union of South Africa:				
Cape Province—				
Glen Grey district—Vaalbank	Jan. 31-Feb. 12	8	8	Natives.
Orange Free State—				
Hoopstad district	Feb. 6-12	1	1	Native; on farm in Bultfontein Area.
Vredefort district	do	2	1	1 case in European; fatal case in native. On 2 farms.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Canada	Mar. 13-19	47		
Alberta	do	27		
Calgary	Feb. 27-Mar. 19	21		
Ontario	Mar. 13-19	20		
Ottawa	Mar. 20-26	1		
China:				
Canton	Dec. 1-31	5		Variola.
Chefoo	Jan. 23-Feb. 19			Present.
Chungking	Jan. 23-Feb. 5			Do.
Hongkong	Feb. 6-19	15	10	
Manchuria—Harbin	Feb. 7-13	1		
Shanghai	Feb. 20-26		1	Chinese. In foreign settlement.
Tientsin	Feb. 6-19	9		Reported by 1 mission hospital.
Great Britain:				
England and Wales	Feb. 20-Mar. 5	967		
Dundee	Mar. 31	42		
Newcastle-on-Tyne	Mar. 6-12	1		
India:				
Calcutta	Feb. 6-12	153	102	
Madras	Feb. 19-26	32		
Rangoon	Feb. 6-12	46	2	
Jamaica	Feb. 6-Mar. 12			Cases, 50; reported as alastrim.
Java:				
Surabaya	Jan. 21-27	2		
Mexico:				
San Luis Potosi	Mar. 6-12		5	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Portugal:				
Lisbon	Feb. 27-Mar. 5	3		
Senegal:				
Dakar	Feb. 28-Mar. 6	2		One case chicken pox re
Siam	Feb. 6-12	8	1	Apr. 1, 1926-Feb. 12, 1[illegible] 739; deaths, 281.
Union of South Africa:				
Cape Province—Wodehouse district	Jan. 30-Feb. 12			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 8, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Union of South Africa:				
Orange Free State—				
Frankfort district	Jan. 30-Feb. 5			Outbreaks.
Yugoslavia				February, 1927: cases 22; deaths, 1.

Reports Received from January 1 to April 1, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-22			Cases, 9,029; deaths, 5,063.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan 2-Feb. 5	315	244	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Feb. 5	4	4	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925: Cases, 3.
Cochin-China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Ton[illegible]n	do	784	482	July, 1925: Cases, 3; death, 1.
[illegible]:				
[illegible]iogo	Nov. 14-20	3		
[illegible]ire Islands:				
[illegible]nila	Oct. 31-Nov. 6	1		
[illegible]	Aug. 1-Sept. 30	8		
[illegible]	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,161.
[illegible]	Jan. 2-Feb. 5			Cases, 135; deaths, 99.
[illegible]ok	Oct. 31-Jan. 1	16	5	
[illegible]	Jan. 9-Feb. 5	7	2	
[illegible]s Settlements	July 25-Oct. 16		60	
[illegible]ngapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
[illegible]ria:				
Algiers	Reported Nov. 16	1		
[illegible]ona	Jan. 11-19	3	2	
[illegible]ran	Nov. 21-Dec. 10	32	22	
[illegible]arafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
[illegible]a:				
[illegible]nguela district	Oct. 1-Dec. 31	17	10	
[illegible]zoranza Norte district	Dec. 1-31	18	10	
[illegible]ssamedes district	Dec. 16-31	10		
[illegible]	Jan. 9-15	5		
[illegible]hael's Island—				
[illegible]nas	Nov. 3-17	4	1	27 miles distant from port.

[1] From [illegible]cal officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Brazil:				
Porto Alegre	Jan. 23	2	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Feb. 12	21	10	8 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-28			Cases, 13.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Provinc	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-22			Cases, 4,535; deaths, 3,047.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Feb. 12	4	4	
Madras	Oct. 31-Jan. 1	581	324	
Do	Jan. 2-29	435	276	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Feb. 5	22	21	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 13.
Cochin-China	do	8	4	July, 1925: No cases.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Iraq:				
Baghdad	Jan. 23-Feb. 5	2	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Feb. 5	123	118	
East Java and Madura	Dec. 19-Jan. 1	3	3	
Do	Jan. 2-22	4	4	
Surabaya	Oct. 24-Dec. 18	14	14	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Analalava	Oct. 16-31	1	1	
Antsirabé	Dec. 16-31	2	2	
Itasy	Oct. 16-Dec. 31	39	39	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Tamatave	do	15	2	
Tananarive	do			Cases, 533; deaths, 497.
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	34	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Port Louis	do	20	18	
Nigeria	Aug. 1-Nov. 30	909	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-31	47	10	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-31	1		
Lima	Nov 1-Dec. 31	42	14	
Do	Jan. 1-31	46	10	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Feb. 5			Cases, 5; deaths, 4.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djenemana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Craddock district	Jan. 2-8	2	1	
De Aar district	Nov. 21-27	1		Native.
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-22	3		
Vredefort district	Dec. 19-25	10	5	First case occurred Dec. 1, 1926. Reported Dec. 17.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-20	86		
Algiers	Dec. 11-31	4		
Do	Jan. 1-Feb. 10	3		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 12	51	25	
Sao Paulo	Aug. 28-Dec. 5	34	18	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Mar. 12			Cases, 416.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Mar. 12	120		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-29	12		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 6	6		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Mar. 12	20		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Mar. 12	229		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Mar. 19	5		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Mar. 12	62	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Mar. 12	45		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-30	1		
Chungking	Nov. 7-Dec. 25			Present.
Do	Jan. 2-31			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 8	33	22	
Manchuria—				
Harbin	Dec. 16-31	3		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 30-Feb. 5		1	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-22	2		
Chosen	Aug. 1-Nov. 30	53	19	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Feb. 20	17	3	
French Settlements in India	Aug. 29-Dec. 18	118	118	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Feb. 19			Cases, 3,524.
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Feb. 19	15		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Mar. 5	484		
Wakefield	Jan. 30-Feb. 2	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-31		23	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,000.
Do	Jan. 2-22			Cases, 14,228; deaths, 3,195.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-Feb. 12	140	74	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-Feb. 5	561	422	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Feb. 12	26	24	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Feb. 19	131	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Feb. 19	12	7	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Saigon	Dec. 26-Jan. 1	3		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-29	1		
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 5	45		
Japan	Oct. 21-Dec. 25	25		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Dec. 17-25	1		
Do	Jan. 2-22	2	3	
Surabaya	Oct. 24-Nov. 27	10	1	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5	6		
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Feb. 26	5		Do.
Nuevo Leon State:				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	do			About 60 cases reported in one hospital; other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Mar. 5		17	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 5		12	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Nov. 30	78	4	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Feb. 26	22		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-15	1		
Siam	Apr. 1926-Jan. 1			Cases, 711; deaths, 268.
Do	Jan. 2-Feb. 5, 1927			Cases, 20; deaths, 12.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Feb. 5	18	12	
Sierra Leone:				
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Mar. 5	4		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-20	8		
Tunis	Jan. 1-10	1		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethal district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-20			Cases, 21.
Algiers	Feb. 1-20	12		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Chile:				
Concepcion	Jan. 23-29		1	
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	4	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Chosen	Aug. 1-Nov. 30	43	2	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-28	1		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-28	4		For all Greece: Cases, 5; deaths, 1.
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Ireland:				
Clare County—Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Lithuania	Sept. 1-Dec. 31	41	4	
Mexico	July 1-Oct. 31			Deaths, 534.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Mar. 5	58		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-15			Cases, 115; deaths, 4.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-20	21		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 16-22			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 16-22			Outbreaks.
Transvaal	Oct. 1-31	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-31	43	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 1, 1927—Continued

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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SPECIAL ARTICLES

Immediate Reaction of Immunity in Smallpox Vaccination
Arsphenamine-Sodium Thiosulphate Treatment in Syphilis
Number of Feeble-Minded and Insane in Institutions

UNITED STATES
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WASHINGTON
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. C. C. PIERCE, *Chief of Division*

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They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PREVALENCE OF DISEASE

PUBLIC HEALTH REPORTS

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INTRADERMAL SMALLPOX VACCINATION

A Method for Increasing the Administrative Value of the Immediate Reaction of Immunity [1]

By JOHN N. FORCE, M. D., Dr. P. H., *Special Expert, United States Public Health Service; Professor of Epidemiology, University of California, Berkeley, Calif.*

HISTORY OF THE IMMEDIATE REACTION

Although variolation was introduced into Europe early in the eighteenth century, it was not until toward the close of that century that we find any reference to the reaction which was produced when the smallpox virus was inserted into the skin of a subject who gave a history of a previous attack of this disease or of cowpox.

Among the papers of Nash, an English medical practitioner who died in 1785, was discovered an unpublished account of the variolation of "about 60 persons who have been reported to have had the cowpox," which contained the following sentences:

> When those who have had the cowpox are inoculated the arms inflame, but never, or at least seldom, form an abscess, but some hard tumor in the muscular flesh.
>
> In those who have had the cowpox the arm on inoculation for smallpox is inflamed to a greater extent than in those who have not had it; but then there is little or no matter in the middle, where the puncture was made, nor does it fill as in those who have not had this disease, but soon heals and dries. (Quoted by Vaughan (1).)

Daniel Sutton, the originator of the Suttonian system of inoculation, refers to the reaction which is produced by the repeated variolation of persons who, "unconscious of having had the smallpox, present themselves for inoculation":

> In a few hours after the insertion of the smallpox matter the part became considerably inflamed and hardened to the extent of a shilling or wider, resembling the effects produced by the stings or bites of small venomous insects, and attended with an itching sensation. These effects increasing, continued for two, three, four, or more days, and then disappeared. (Sutton (2).)

In interpreting the above description of the reaction, it should be borne in mind that the success of Sutton's system of inoculation depended upon the method of insertion of the virus. His insertion

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[1] Submitted for publication Mar. 30, 1926.

was made intradermally, or rather subepidermally, as may be seen from the following description of his technique:

> The lancet being charged with the smallest perceivable quantity (and the smaller the better) of unripe, crude, or watery matter, immediately introduce it by puncture, obliquely, between the scarf and true skin, barely sufficient to draw blood, and not deeper than the sixteenth part of an inch. (Sutton (3).)

That Jenner used the oblique puncture method of inserting smallpox virus is apparent from his case histories. In fact, he alludes to "the introduction of the more modern method by Sutton." Consequently it is not surprising to find the following comment on the reaction produced by the variolation of persons who had suffered from cowpox:

> It is remarkable that variolous matter, when the system is disposed to reject it, should excite inflammation on the part to which it is applied more speedily than when it produces the smallpox. Indeed, it becomes almost a criterion by which we can determine whether the infection will be received or not. It seems as if a change, which endures through life, had been produced in the action or disposition to action in the vessels of the skin; and it is remarkable, too, that whether this change has been effected by the smallpox or the cowpox, that the disposition to sudden cuticular inflammation is the same on the application of variolous matter. (Jenner (4).)

Jenner believed that vaccination conferred a lifelong immunity, and he attempted to explain the occurrence of smallpox in previously vaccinated persons by asserting that the vaccination had not been properly performed. Smallpox attacks in previously vaccinated persons became so numerous in the later years of Jenner's life that his explanation was completely discredited, and there was grave danger that vaccination itself would be abandoned. It was noted, however, that the disease in these previously vaccinated persons presented a clinical picture differing from that ordinarily observed. The pustules were less numerous, they were of smaller size, and their development was more rapid but incomplete. In other words, the course of the disease was accelerated and its manifestations were lessened in severity. In 1820, according to Pirquet (5), Thomson suggested that smallpox modified by previous vaccination be called varioloid. Pirquet also states that Wolfert, Dornblueth, and Harder showed that vaccinia did not confer a lifelong protection against itself, that revaccination was necessary, and that this secondary vaccinia differed from primary vaccinia through its accelerated and shortened course as well as the smaller size of the characteristic lesions, the vesicle, and its surrounding red area. The name vaccinoid was suggested for this modified vaccinia, just as the name varioloid had been suggested for a similarly modified variola.

Recognition of the fact that a previous vaccination would modify smallpox even after its preventive effect had become exhausted, and

that this preventive effect could be renewed by revaccination, restored vaccination to favor. Failure to recognize the significance of the modified vaccinia following revaccination led many vaccinators to attempt to secure revaccination scars comparable with those resulting from primary vaccination by cross-scarifying large areas of epidermis. In consequence cross-scarification, with its resultant disfiguring scars, completely supplanted oblique puncture. Furthermore, the extensive traumatic reaction immediately following cross-scarification tended to mask any specific early reaction due to the vaccine. This explains why all reference to Jenner's "sudden cuticular inflammation" following the application of "variolous matter, when the system is disposed to reject it," should have disappeared from the literature for a century. However, the clinical picture of vaccinoid was definitely recognized, as may be seen from the following quotations:

A revaccination, even if successful, seldom passes through all the typical stages of a primary vaccination. The vesicle rarely becomes so full and plump, and is more frequently flat and irregular in outline. (Rohé (6).)

The vesicle in revaccination is usually smaller, has less induration and hyperæmia, and the resulting scar is less perfect. (Osler (7).)

In the first decade of the present century a series of publications by Pirquet not only suggested limiting the size of the scarification by the use of the vaccination drill which bears his name, but also called attention to the essential unity of the several reactions following vaccination and revaccination:

We vaccinate a human subject, who was vaccinated two years previously and according to the usual view is immune, with a drop of lymph. We also vaccinate one who had not yet undergone the process, and we observe closely. Will the immune subject show nothing? On the contrary, when we examine after 24 hours we find in the subject vaccinated for the first time a reactionless small scab, but in the "immune subject" an infected abrasion, a small, elevated, inflamed, itching, red spot. If we wait a couple of days the picture will change. In the previously vaccinated subject the papule becomes brownish and smaller; on the other hand, in the previously unvaccinated subject a vesicle arises under the scab which increases more and more and becomes a pustule surrounded by a large area of redness. * * * The fact which is of importance to me in all this is that both react; the one earlier, the other later; the one with a papule, the other with a pustule; the one almost imperceptibly, the other intensely; no immunity in the sense of an absolute insensitiveness has been established by the previous vaccination, but the reaction capacity has been altered temporally, qualitatively, and quantitatively. (Pirquet (8).)

The manifestation in the immune subject characterized by papule formation at the end of 24 hours Pirquet named the "immediate" or "early" reaction. The manifestation already described as vaccinoid he called the "accelerated reaction."

THE ADMINISTRATIVE USE OF THE IMMEDIATE REACTION

In the early part of 1913 a small outbreak of highly fatal smallpox occurred in Berkeley, Calif. Although compulsory vaccination of entrants showing no vaccination scars had been enforced in the University of California since 1906, and there was little danger of the disease invading the campus population, over a thousand persons requested revaccination at the university infirmary. The results of these revaccinations varied in degree of intensity from the immediate reaction in the highly immune subject to primary vaccinia. While attempting to correlate these reactions with the length of time since previous vaccination, it occurred to me that the immediate reaction in immune subjects might be useful in public health administration. At that time unvaccinated California school children were excluded from the schools until a physician certified that he had produced vaccinia or had used "due diligence" but could not successfully vaccinate. In the case of an immune child the physician would make several attempts before issuing such a certificate. In the university we were sending for our immunes and revaccinating them at the beginning of each semester. I demonstrated the immediate reactions in a group of these immune subjects to Dr. George F. Reinhardt, the university physician, and received his enthusiastic approval of a proposal to release them from further vaccination. I then suggested (9) that immediate reaction could be made a basis for the issuance of "due diligence" certificates to children with a saving of much school time.

The practice of releasing immune subjects from further vaccination on the basis of the immediate reaction was firmly established in the university at the time of the entry of this country into the World War. Believing that much unnecessary revaccination of recruits might be avoided if the use of this reaction could be introduced into the military service, I presented a report (10) to Dr. F. P. Gay, a member of the National Research Council, who transmitted it to Dr. Victor Vaughan, chairman of the committee on medicine and hygiene. Doctor Vaughan brought the matter to the attention of the military authorities and the following instructions were issued:

> The result of vaccination against smallpox will be recorded as *immune reaction*, *vaccinoid*, *vaccinia*, or *unsuccessful*. The *immune reaction* appears as an areola after 24 hours and disappears in 72 hours. In a case of *vaccinoid* there is a small pustule which appears and disappears more quickly than in vaccinia. These reactions are evidence of protection. (Vaccination Register (11).)

Shortly after preparing the above report I assisted Dr. Wilbur A. Sawyer, of the California State Board of Health, in the preparation of a set of regulations for the prevention of smallpox. One of these regulations provided that vaccinated contacts should be kept under

observation until evidence of immunity was secured. We defined this evidence of immunity as follows:

Evidence of immunity * * * should be considered to have appeared—

(1) When the areola surrounding the vaccinia vesicle has reached its maximum development. This is normally the tenth day after vaccination in the case of a primary vaccinia, and from the fourth to the seventh day in a secondary vaccinia (vaccinoid).

(2) When an areola at least 5 millimeters in diameter, with or without a papule, appears at the site within 24 hours after vaccination, rises to a maximum development in 48 hours, and fades without developing a vesicle (reaction of immunity). (California State Board of Health (12).)

We also suggested a form for a vaccination certificate in which the result of the vaccination was reported as one of these three reactions.

While detailed as bacteriologist in the health department of the Panama Canal during the war, I had an opportunity of demonstrating the immediate reaction of immunity to Doctor Grubbs, the chief quarantine officer. We boarded a ship which had reported smallpox by radio, removed the patients, vaccinated all hands, and allowed the ship to transit the Canal. Two days later we crossed the Isthmus by train and observed the reactions, which were so satisfactory that the ship was released from quarantine. Doctor Grubbs (13) was so impressed with the possibilities of the immediate reaction in relation to maritime quarantine that he began using it at the New York Quarantine Station upon assuming charge in 1921.

That the immediate or immune reaction has been officially recognized in the Navy is apparent from the following statement:

It must be remembered that carrying out the technique of vaccination does not necessarily mean that the individual has been protected against smallpox. Repeated vaccination is necessary, unless an immediate reaction of immunity is the result or a positive take is obtained. Detection of the former requires careful inspection of the arm at the end of 36 or 48 hours, and again at the end of the fifth day. Failure to obtain either an immediate reaction or a positive take of some degree is an indication that the virus was impotent or that the technic of vaccination was bad. (Department of the Navy (14).)

New York physicians are requested to use the above classification in reporting vaccination results to the local health officer, according to an article in a recent number of the official bulletin of the State department of health. The article is accompanied by an excellent chart illustrating the three types of reaction (15).

Thomas (16) vaccinated the students of Lehigh University in the fall of 1925 and classified the results according to the method suggested by Grubbs (13).

From the foregoing accounts it would appear that the hope expressed in 1913, that the immediate reaction of immunity would be of use in public health administration, has been realized. What are the sources of error which tend to cast doubt on the reliability of the test?

Technique.—Pirquet places the drop of vaccine on the skin and makes a rotary scarification through it. In my opinion this method constitutes a source of error, as it is very difficult to determine the depth of scarification through an opaque fluid. In order for the vaccine to reproduce it must come in contact with the derma, and a satisfactory scarification should completely remove the epidermis but should not draw blood. If the epidermis is completely removed there will be a small, brown, circular scab on the scarified spot 24 hours later. If the scarification site presents a pinkish or rose-colored spot at this time the epidermis has not been punctured. The vaccine should be rubbed on the exposed derma, not simply dropped on it.

Vaccine.—It should be clearly understood that the terms "vaccinia," "vaccinoid," and "immediate reaction of immunity" are not used to indicate three sharply defined phenomena following smallpox vaccination, but are convenient designations for different aspects of one process—the reaction between living organism and host. The vaccinoid is a vaccinia with an accelerated and less intense course, while the immediate reaction is a vaccinoid which is further accelerated, so that its maximum development is reached a day or so after vaccination and the visible manifestation is limited to the papule. With this conception of the smallpox vaccination process in mind, it is at once evident that the application of an insufficient number of organisms to the vaccination site will tend to confuse the diagnosis. Underdosage may occur either from the application of a sufficient amount of vaccine poor in living organisms or from an insufficient amount of vaccine rich in living organisms.

If the vaccination site shows no activity until the fourth day, and then a small papule appears, only to disappear with no or very slight vesiculation, we know that this is not an immune reaction, but that the vaccine contains relatively few living organisms and is incapable of producing a complete vaccinia. It is not so simple—indeed it is almost impossible—to differentiate between an immediate reaction and an incomplete vaccinoid. Forty-eight hours after vaccination an immediate reaction and a vaccinoid may both be in the papular stage. The former has reached its maximum development, while the latter should increase in extent for several days. If the vaccine is poor in organisms the vaccinoid may not develop beyond the papular stage, and an incorrect diagnosis of immune reaction may be made. Peterson (17) vaccinated comparable groups of subjects with vaccines of different potencies, using a uniform technique. Observation at the end of 48 hours showed wide variations in the results, as may be seen from the comparison of a group of over 600 vaccinated with

a higher-potency vaccine with a group of over 400 vaccinated with a vaccine of low potency.

Potency	Vaccinia	Vaccinoid	Immediate reaction	Failure
	Per cent	*Per cent*	*Per cent*	*Per cent*
High	2.2	7.2	87.8	2.9
Low	.2	.2	97.4	2.2

As the two groups had vaccination histories similar in every respect, it is suggested that a certain number read as immediate reaction 48 hours after vaccination were actually incomplete vaccinoids. At all events, Peterson's conclusion that "immediate reaction as occuring subsequent to revaccinations with poor virus is not a sure sign of protective immunity, because if a potent vaccine had been used a positive reaction might have been obtained," is entirely justifiable.

Immunity.—Although the scarification may have exposed the derma, and a sufficient quantity of a potent vaccine may have been well rubbed into the exposed area, the immediate reaction of immunity may fail to appear in highly immune subjects. In other words, the typical immediate reaction manifesting itself by a papule which reaches a maximum between 24 and 48 hours after vaccination may be still further accelerated and reduced in intensity until it is merged with the traumatic reaction following the scarification.

I first observed the complete failure of the immediate reaction in a subject who bore the purple scars of recent smallpox. Inspection of the site, as early as 12 hours after vaccination, failed to show any reaction which could be differentiated from the response to the trauma produced by the vaccination drill. Ten years ago, when only a few hundred cases of smallpox were reported annually in California, failure of the immediate reaction in immume subjects was practically never observed among students entering the university. In recent years, however, mild smallpox has been extremely prevalent among the children of the State. In addition to the cases reported, there have been many in which the disease has been unrecognized. This condition has tended to increase the immunity among unvaccinated university entrants to such an extent that failures to recognize the immediate reaction are no longer rare. Our experience in this regard is similar to that of Peterson (17), who reported 36.36 per cent of failures of the immediate reaction (48-hour reading) in 275 revaccinations on subjects with no visible vaccination scar. Pirquet (18) noted occasional failures of the immediate reaction of immunity, and explained them by stating that the reaction is "so small that it disappears under the traumatic reaction." In a later publication he (19) asserts that these negative reactions are due to

a low concentration of "apotoxin," insufficient to excite inflammation. This "apotoxin," according to his theory, is developed by the interaction of the vaccine microorganism and the antibodies. In other words, in a highly immune subject the vaccine organisms are destroyed before colony development has taken place. Pirquet further states that the reaction would have occured if enough organisms had been implanted at the site of inoculation, but that this is sometimes impossible by means of cutaneous insertion (i. e., scarification).

Pirquet based these conclusions on the results obtained through the revaccination of four subjects who had been successfully vaccinated from 5 to 10 years previously. Each of these subjects was vaccinated by means of three cutaneous insertions (drill scarifications) of ordinary smallpox vaccine. Simultaneously 0.05 cubic centimeters of a 1 in 10 dilution of the vaccine, which had been heated to 80° C. for one hour, was injected intracutaneously. "All the injection sites and 9 of the 12 vaccination sites showed a specific reaction, referable to the cowpox vaccine; of course, very different in extent and with a maximum on different days. The experiment was repeated 12 days later. All the injection sites again gave a positive reaction, but only 3 of the 12 vaccination sites, the others remaining negative. This time the type of reaction [2] was much more uniform both in extent and, particularly, in the early appearance of the maximum development." The three vaccination sites above mentioned were on one subject and showed small immediate reactions, which reached maximum development in 24 hours. The 9 sites on the three remaining subjects were negative.

It is apparent from the above experiment that highly immune subjects may show negative or very small immediate reactions when vaccinated cutaneously; but that hypersensitiveness to the vaccine is actually present is shown by the response to a diluted and heated vaccine injected intracutaneously.

I now propose to show that this hypersensitiveness to intracutaneous vaccination can be used as an administrative aid, not only where the immediate reaction has failed to follow the cutaneous vaccination of supposedly immune subjects, but in general where a maximum of information is desired with a minimum of vaccination.

THE IMMEDIATE REACTION FOLLOWING INTRADERMAL SMALLPOX VACCINATION

In 1915 Force and Beckwith (20) showed that previously vaccinated rabbits gave a marked immediate reaction to the intradermal injection of smallpox vesicle contents, but did not react to chicken pox

[2] That is, intracutaneous reaction.—J. N. F.

material. Leiner and Kundratitz (21) revaccinated intracutaneously a series of previously vaccinated children, and found a reaction appearing within 24 hours corresponding to the early reaction of Pirquet. Frankenstein (22) employed intracutaneous vaccination to prove an existing immunity in children previously vaccinated, and obtained on the day following injection a reaction corresponding to the early cutaneous reaction.

We first employed intradermal smallpox vaccination at the University of California in 1919, but our experiments were interrupted by certain work on diphtheria and were not renewed until August, 1924. The technique now employed is as follows:

Vaccine.—Ordinary commercial smallpox vaccine is diluted 1 in 100 and distributed into 2 cubic centimeter vials which are covered with thin rubber test-tube caps. Half of the bottles delivered in a given lot are heated in a water bath at 80° C. for one hour. All the bottles are kept on ice, and no dilution is used after it is a week old.

Filling the syringes.—When ready to fill the syringes, the cap of a bottle of heated vaccine is painted with tincture of iodine and a long 20-gauge hypodermic needle is thrust through it into the contents. This is repeated with a bottle of unheated vaccine. A glass tuberculin syringe is filled from each bottle and removed without disturbing the needle. On each syringe is then placed a 26-gauge platinum iridium needle, which can be flamed between injections.

Injection of vaccine.—No fluid is allowed to run out of the needles previous to injection. The skin of the arm is tightly drawn and the point of the needle, bevel toward the left of the operator, is thrust perpendicularly through the epidermis. The hand is then turned so that the bevel of the needle is up under the epidermis. The needle is then pushed horizontally under the epidermis for about one-half centimeter and 0.1 cubic centimeter of the vaccine is injected. If properly done an epidermal bleb will be formed in which the depressed openings of the sebaceous glands are visible. Formerly we attempted to make a true intradermal injection, i. e., into the derma, but recently we have abandoned this in favor of a subepidermal injection, attempting to place the vaccine between the epidermis and the derma as superficially as possible. After removal of the needle the injection site is painted with tincture of iodine, which is washed off with alcohol in order not to interfere with the subsequent color of the reaction.

The heated virus is injected approximately 5 centimeters above the unheated virus. Wayson, who followed this method recently in testing the immunity of a hospital population exposed to smallpox, placed the heated vaccine below the unheated. He believes that this minimizes a possible effect which the unheated vaccine might exert on the heated vaccine if it is placed below.

The immediate reaction.—Within 24 hours the wheals on both injection sites have been replaced by an area of redness, darkest in the center and fading toward the periphery. The area is edematous, the most marked infiltration being in the center, although this central infiltration is not sharply circumscribed. With a 1 in 100 dilution of vaccine the reaction reaches its maximum in 48 hours, at which time a slight superficial vesiculation is occasionally seen at the center. Involution follows rapidly, the infiltration disappearing first, while the redness becomes a brownish stain, with slight desquamation. Slight infiltration may be present as late as the seventh day at the site of injection of the unheated vaccine, but rarely lasts more than three days at the site of injection of the heated control. The latter lesion is ordinarily smaller than the former. The sequence of redness, infiltration, superficial vesiculation (not to be confused with the vaccinia vesicle), pigmentation, and final desquamation is strikingly similar to that following the intradermal injection of diphtheria toxin.

Size of immediate reaction.—In a future paper the entire subject of intradermal smallpox vaccination will be discussed from the statistical and immunological standpoints by Professor Beattie, Mrs. Lucia, and myself. For the purpose of this paper it is sufficient to give the measurements of the lesions in immediate reactions observed 48 hours after the injection of a 1 in 100 dilution of smallpox vaccine. These measurements are expressed in millimeters, and were made in the maximum diameter in each instance. From the statistical standpoint it will be noted that the control infiltrations are more constant in size than the control areolæ, and that both areola and infiltration followed each injection of unheated vaccine (Table 1).

TABLE 1.—*Measurements of immediate reactions of immunity in 32 subjects 48 hours after the intradermal injection of 0.1 cubic centimeter of a 1 in 100 dilution of smallpox vaccine.*

	Number of measurements greater than zero	Mean	Standard deviation	Coefficient of variation
Areolæ:				
Heated vaccine	21	16.3±1.67	14.0±1.18	86.0
Unheated vaccine	32	21.6±1.87	15.7±1.32	72.8
Infiltrations:				
Heated vaccine	30	10 4± .48	4.0± .34	38.4±2.68
Unheated vaccine	32	11.8± .37	3.1± .26	26.3±2.36

THE COURSE OF VACCINIA FOLLOWING INTRADERMAL SMALLPOX VACCINATION

When, on the other hand, a previously unvaccinated subject with no history of smallpox is vaccinated intradermally with heated and with unheated vaccine, the clinical picture is in marked contrast to

that just described in the immune subject. In about three-fourths of the cases there is no reaction at the site of injection of the heated vaccine; in about one-fourth there is a small, red, infiltrated spot, which disappears after the second day. At the site of injection of the unheated vaccine there is visible at the end of 24 hours a red, sharply circumscribed infiltration 7.5 (standard deviation, 2.4) millimeters in mean diameter. This "primary reaction" becomes progressively paler and less infiltrated until about the fifth day, when the secondary reaction begins with a return of infiltration and redness. On the ninth day the infiltration is surrounded by a wide area of redness and is surmounted by a typical vaccinia vesicle. In a series of 29 subjects vaccinated with a dilution of 1 in 100 the mean measurements on the ninth day at the site of injection of unheated vaccine were as follows: Area of redness, 45.6 (standard deviation, 26.4) millimeters; infiltration, 19.1 (standard deviation, 8.4) millimeters, vesicle, 7.7 (standard deviation, 2.1) millimeters. Involution follows rapidly after the ninth day, and the resulting scar is somewhat smaller than that produced by the drill method. In rare instances a slight transient redness a few millimeters in diameter appears at the site of injection of the heated vaccine when the vaccinia reaches its height.

The above description of the course of vaccinia following intradermal smallpox vaccination is inserted for the purpose of comparison with the course of the immediate reaction of immunity. It is obvious that there is little chance for confusion of the two clinical pictures.

The vaccinoids form a graduated series between these two typical reactions which have been described. In general it may be stated that, although the appearance of the two sites of vaccinoid reaction may be similar at the end of 48 hours, the reaction on the site containing heated vaccine will fade to a brownish stain within the next day or two, while its companion will remain red and infiltrated and may develop a small accelerated vesicle.

ADMINISTRATIVE USE OF THE IMMEDIATE REACTION OF IMMUNITY FOLLOWING INTRADERMAL SMALLPOX VACCINATION

All students entering the University of California in August, 1925, who failed to show vaccination scars were vaccinated either cutaneously by the drill method or intradermally by the method above described. Of those vaccinated cutaneously, 42 failed to present satisfactory reactions. Eleven previously unvaccinated subjects showed no reaction at the end of the first week. Six of seven giving a history of smallpox and 10 of 24 previously vaccinated showed no reaction either within 48 hours or at the end of the first week; the remaining 15 showed no reaction at the end of the first week. In other words, there were 11 failures in persons with a normal expectancy of vaccinia, 6 failures to show immediate reactions in supposedly immune

persons, and 25 complete failures or uncertain reactions in persons whose immunity status could not be anticipated.

In order to expedite the final diagnosis in these 42 students, intradermal vaccinations were performed with dilutions (1 in 100) of heated and unheated virus. Vaccinia, as evidenced by absence of lesion from the heated vaccine injection site coincident with presence of vesicle at the unheated vaccine injection site, was observed in 9 subjects unvaccinated before entering the university, in 8 vaccinated before entering the university, and in 1 giving a history of smallpox. Immediate reaction of immunity, as evidenced by redness and infiltration appearing within 48 hours at both sites with rapid involution and brownish staining, was observed in 2 subjects unvaccinated before entering the university, in 16 vaccinated before entering the university, and in 6 giving a history of smallpox. In this series the mean diameter at the time of maximum development of the reactions resulting from the injection of heated vaccine was 19.8 millimeters; unheated vaccine 23.4 millimeters. Failure to react to intradermal vaccination was not observed.

Case histories.—Case histories of 3 members of this group of 42 students are presented below:

No. 65: Vaccinated three times before entering the university; no visible scar. Vaccinated by cutaneous scarification, with no result other than a slight areola on the fourth day. Revaccinated intradermally 11 days after the cutaneous vaccination with a dilution of 1 in 100 and with a heated control of same dilution higher on the arm.

24 hours after vaccination.—

Heated vaccine: Site of injection showed a red and indurated spot 10 millimeters in diameter. Unheated vaccine: Similar papule 8 millimeters in diameter.

48 hours after vaccination.—

Heated vaccine: Papule slightly red and slightly indurated, 6 millimeters in diameter. Unheated vaccine: Papule still red and indurated, 7 millimeters in diameter. (See Plate I.)

6 days after vaccination.—

Heated vaccine: Reaction has entirely disappeared. Unheated vaccine: A slightly red, slightly indurated spot 22 millimeters in diameter, with a typical vaccinia vesicle 5 millimeters in diameter.

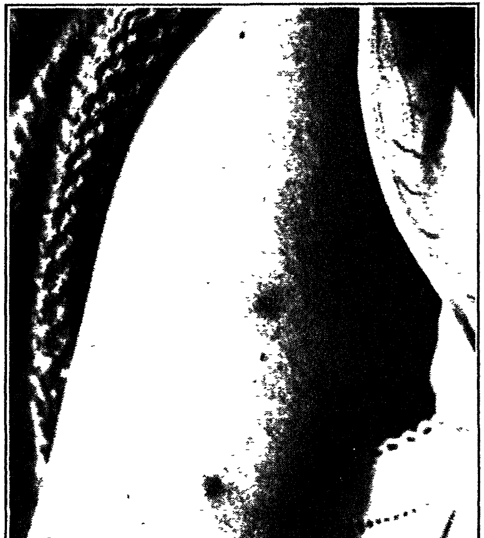
This case represents the typical vaccinia.

No. 104: Vaccinated three times before entering the university; no visible scar. Vaccinated by cutaneous scarification, with no result other than a slight areola and papule on the fifth day. Revaccinated intradermally 11 days after the cutaneous vaccination with a dilution of 1 in 100 and with a heated control of same dilution higher on the arm.

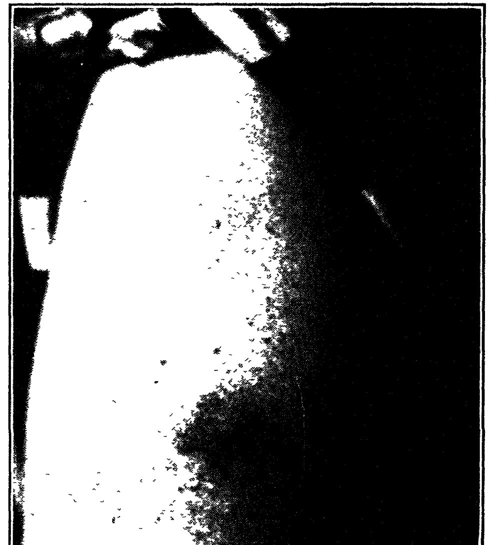
24 hours after vaccination.—

Heated vaccine: Site of injection showed a red and indurated spot 15 millimeters in diameter. Unheated vaccine: An areola of 18 millimeters diameter, with a central papule 11 millimeters in diameter red and indurated.

PLATE I



No. 65.—Vaccinia, 48 hours after intradermal smallpox vaccination. The upper injection site contains the heated control vaccine



No. 104.—Immediate reaction of immunity, 48 hours after intradermal smallpox vaccination The upper injection site contains the heated control vaccine

No 122—Immediate reaction of immunity, 24 hours after intradermal smallpox vaccination. The upper site contains the heated control vaccine

48 hours after vaccination.—

Heated vaccine: A slightly red areola of 32 millimeters, with a slightly red, slightly indurated center 14 millimeters in diameter. Unheated vaccine: A red areola of 34 millimeters, with a red and indurated center of 17 millimeters in diameter. (See Plate I.)

6 days after vaccination.—

Heated vaccine: A brownish stain of 15 millimeters diameter. Unheated vaccine: A slightly red areola of 14 millimeters diameter, with a slightly indurated center 4 millimeters in diameter.

This case represents the immediate reaction of immunity, with enough difference between the lesions at the two injection sites to place the final diagnosis almost in the vaccinoid classification. Had the redness and induration persisted at the site of injection of the unheated vaccine a day or so longer, or had a small vesicle formed, this would have been considered a vaccinoid.

No. 122: Vaccinated once before entering the university; no visible scar. Vaccinated by cutaneous scarification, with no result visible at end of seven days. Revaccinated intradermally seven days after the cutaneous vaccination with a dilution of 1 in 100 and with a heated control of same dilution higher on the arm.

24 hours after vaccination.—

Heated vaccine: Site of injection shows red and indurated spot 15 millimeters in diameter. Unheated vaccine: A similar spot 18 millimeters in diameter. (See Plate I.)

The redness and induration gradually subsided.

This case represents the typical immediate reaction of immunity.

Von Groeer (23) explains the relation of the reactions following intradermal injection to those following cutaneous excoriation as follows:

It is generally assumed that the quantity of substrate absorbed by a Pirquet drill excoriation is about one ten-thousandth of the quantity introduced intracutaneously in a volume of 0.1 cubic centimeter. If, therefore, a stimulating substance of the concentration of "a" causes an effect in the cutaneous application, then a concentration of "a/10,000" of the same substance is to be used in 0.1 cubic centimeter intracutaneously to produce about the same effect.

Assuming this relation to be correct, it is apparent that a dilution of 1 in 100 smallpox vaccine injected intradermally would cause an effect 100 times as great as the amount of undiluted vaccine absorbed by the circle of derma laid bare by the Pirquet drill. This indicates why an intradermal injection produces a visible response in cases where no definite reaction follows cutaneous vaccination.

SUMMARY

1. The literature on the administrative use of the immediate reaction of immunity following smallpox vaccination is reviewed.

2. The causes of failure to obtain this reaction are discussed.

3. The immediate reaction of immunity following intradermal smallpox vaccination and the technique of this vaccination are described.

4. The administrative use of the intradermal method in cases where the cutaneous method has failed to give reactions is suggested.

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ARSPHENAMINE-SODIUM THIOSULPHATE TREATMENT OF EXPERIMENTAL SYPHILIS

By Carl Voegtlin, *Professor of Pharmacology*, and Helen A. Dyer, *Assistant Pharmacologist, Hygienic Laboratory, United States Public Health Service*

In a recent paper (1927) we have clearly shown that sterilization of syphilitic rabbits at an advanced stage of the disease can be accomplished by a single large dose of arsphenamine, neoarsphenamine, or sulpharsphenamine. Expressed in number of milligrams of drug per kilogram of body weight the minimum sterilizing dose of the preparations used was as follows: Arsphenamine 23.5, neoarsphenamine 40, and sulpharsphenamine 35. If we compare these doses with what are customarily considered the maximum tolerated doses for man (also expressed as mg. per kilo), i. e., arsphenamine 10 mg., neoarsphenamine 15 mg., and sulpharsphenamine 10 mg., it is obvious that the minimum sterilizing doses in rabbits far exceed the maximum doses which are used clinically. The minimum sterilizing doses for man are, of course, not known; but if, with obvious reservations, we assume them to be of the same order of magnitude as those in rabbits, it is evident that eradication of the disease in the human being could hardly be expected from the customary single maximum doses mentioned above. Better results, however, may be secured by the repeated administration of these drugs (course treatment). But, judging from the clinical literature, even prolonged treatment does not appear to produce sterilization in a large number of cases. Hence, progress in the control of syphilis in this respect can be expected only from (a) the discovery of more effective substitutes for the arsphenamines or from (b) the introduction of modifications in the arsphenamine treatment which would safely allow a greater intensification of the treatment. The experimental work to be reported will concern the second possibility. The problem is to find means whereby it would be possible to use larger doses of the arsphenamines without increasing the toxicity for the host or decreasing the parasiticidal effect. Now it has been known for several years, from the clinical observations of Ravaut (1920), McBride and Dennie (1923), and others, that sodium thiosulphate has a strikingly favorable influence on the toxic after effects of the arsphenamine treatment, such as the skin reactions, jaundice, and, perhaps also, the encephalitis. The mechanism of the therapeutic action of thiosulphate in these conditions is still incompletely understood. Myers, Groehl, and Metz (1925), and Kuhn and Reese (1925) have shown that patients suffering from arsenical dermatitis or jaundice excrete a larger amount of arsenic with the urine after each injection of thiosulphate, and they assume, therefore, that the beneficial effect of the drug is due, in part, to removal of stored arsenic from the

body. In view of the well-established therapeutic action of thiosulphate in arsphenamine intoxication, it is reasonable to inquire whether this drug might not be of value in *preventing* these toxic manifestations which would otherwise occur as a result of more intensive treatment with the arsphenamines. Sodium thiosulphate injected intravenously into rats has a very low toxicity; doses up to 2.5 gm. per kilo are tolerated and, furthermore, large doses of thiosulphate delay the death of rats injected with fatal doses of "arsenoxide," a partial oxidation product of arsphenamine (Voegtlin, Dyer, and Leonard, 1925). If, therefore, it could be shown that the parasiticidal action of the arsphenamines remains unaffected by simultaneous thiosulphate treatment, the requirements sought for our purpose would be fulfilled.

EXPERIMENTAL PART

The influence of thiosulphate on the parasiticidal action of the arsphenamines was studied in rats infected with our strain of *Trypanosoma equiperdum*, using the technique described in previous papers from this laboratory. Commercial samples of arsphenamine, neoarsphenamine, and sulpharsphenamine, which had passed the official tests, were injected intravenously into albino rats showing on examination of their blood a uniform degree of infection. A second series of infected rats received intravenous injections of a mixture of equal parts of arsenicals and sodium thiosulphate, the drugs being mixed *in vitro* just before their injection. A third series of infected animals received 0.5 gm. of sodium thiosulphate per kilogram body weight intravenously, this being followed immediately by the injection of the arsphenamines. The blood of all animals was examined for a period of a month for the presence of trypanosomes.

The results of these experiments are summarized in Tables 1 to 3, appended. It will be noted that simultaneous thiosulphate treatment surely does not decrease the trypanocidal efficiency of arsphenamine, neoarsphenamine, or sulpharsphenamine. If anything, the separate injection of thiosulphate slightly increases the parasiticidal action of neoarsphenamine and sulpharsphenamine.

These favorable results made it necessary to investigate the influence of simultaneous thiosulphate treatment on the spirocheticidal action of the arsenicals in experimental syphilis. Sulpharsphenamine was selected for this purpose, as clinical experience has shown that this arsphenamine derivative has the greatest tendency to cause dermatitis.

Disappearance of spirochetes from lesions.—Four male rabbits received scrotal injections of a heavy suspension of *Spirochæta pallida* (Nichols strain). Thirty-seven days later all four animals had

large chancres containing numerous actively motile spirochetes (dark field).

Two rabbits (controls) received an intramuscular injection of 10 mg. sulpharsphenamine per kilo body weight. Examination of the lesions of the two animals showed that the organism had disappeared in one animal within 24 hours after treatment and in the other within 48 hours. Neither of the two animals was sterilized, as shown by the tissue transfer method (Voegtlin and Dyer, 1927) carried out 12 weeks after treatment. These results conform with similar experiments of the authors, in showing that this dose of sulpharsphenamine, while causing the temporary disappearance of organism from the lesions, is not sufficient for sterilization.

The other two rabbits received the same dose of sulpharsphenamine intramuscularly and, in addition, intravenous injections of 0.5 gm. sodium thiosulphate at the time of the arsenical treatment (morning), and the same dose again in the afternoon of the same day, and the second, third, fifth, sixth, and seventh days. The spirochetes disappeared from the lesions within 24 hours in both animals, without sterilizing the animals. We may, therefore, conclude that relatively large doses of thiosulphate do not influence the rate of disappearance of spirochetes from the lesions following the injection of a therapeutic dose of sulpharsphenamine.

Influence on sterilizing action.—From the therapeutic standpoint, the most important question is to decide whether the combined arsenical-thiosulphate treatment is at least equally effective, with regard to sterilizing efficiency, as the simple sulpharsphenamine treatment. We have previously shown (Voegtlin and Dyer, 1927) that the minimum sterilizing dose of a commercial sulpharsphenamine is 35 mg. per kilo body weight. A series of 12 male rabbits were therefore inoculated in the scrotum with the Nichols strain. Seven weeks later all animals had typical chancres, containing numerous spirochetes.

Six rabbits (controls) received a single intramuscular injection of 35 mg. sulpharsphenamine. Examination of the lesions two days later showed that the organism had disappeared. The lesions healed rapidly, and tissue transfers, made 12 weeks after treatment, indicated that all of the animals had been sterilized, which conforms with previous findings.

Six rabbits received the same treatment with sulpharsphenamine and, in addition, intravenous injections of 0.5 gm. sodium thiosulphate at the time of the arsenical treatment (morning) and the same dose again in the afternoon of the same day, and the second, third, fifth, sixth, and seventh days. No difference, as compared with the controls, was noted with regard to the rate of disappearance

of the spirochetes, and the time required for the healing of the lesions. Here also the tissue transfers made 12 weeks after treatment indicated that the infection had been eradicated by the treatment in every case. The conclusion is justified that simultaneous thiosulphate treatment does not in any way decrease the sterilizing efficiency of sulpharsphenamine in experimental syphilis.

Toxicity of sodium thiosulphate.—It appeared desirable to secure further data on the toxicity of sodium thiosulphate. Table 4 contains the results obtained in rats. On account of the low toxicity, rather high concentrations had to be used, and it is very likely that part of the toxic action may be due to osmotic effects. At all events it will be conceded that thiosulphate exhibits a very low toxicity in rats. If symptoms appear at all, they appear during or soon after the injection and if the animal survives, recovery takes place very promptly.

Experiments with rabbits indicate that doses of 1 to 2 gm. per kilo (10 per cent solution) injected slowly into an ear vein are tolerated without the production of any symptoms. Higher doses (4 gm.) produce restlessness toward the end of the injection, this being followed by muscular weakness and depression.

Large doses were also given to cats *per os*. No symptoms were observed in fasting animals; if fed meat, however, the cats showed some gagging for about half an hour, without any further symptoms. It therefore appears that the drug is better tolerated on an empty stomach, a fact which is probably due to the chemical decomposition of the thiosulphate by the gastric hydrochloric acid.

COMMENTS

The evidence adduced by these experiments permits the following two conclusions: First, that sodium thiosulphate in large doses does not decrease the trypanocidal and spirocheticidal action of sulpharsphenamine; and, second, that the toxicity of thiosulphate in the ordinary laboratory animals is of a low order. This strongly suggests the desirability of applying this knowledge to clinical conditions. To begin with, it would be of great interest to treat, with a combination of thiosulphate and arsphenamine, cases known to be especially susceptible to arsphenamine dermatitis and jaundice, in order to ascertain whether or not this combined therapy is better tolerated. It is suggested that the thiosulphate be given by separate intravenous injections at the time of the arsenical treatment and in doses which are customarily employed for the treatment of dermatitis exfoliativa, i. e., doses of 0.5 gm. to 1.5 gm. for adults. In order to simplify the treatment still further, the thiosulphate could be given orally (Kuhn and Reese, 1925) in doses of 2 gm. dissolved in 120 to 200 c. c. of physiological sodium chloride solution before breakfast, the arsenical

treatment being given during the forenoon. Decomposition of the thiosulphate by the gastric hydrochloric acid might also be prevented by the addition of sodium bicarbonate.

Should this combined arsphenamine-thiosulphate treatment be well tolerated by patients with an idiosyncrasy for the arsphenamines, then we should also advocate its application in the routine treatment of ordinary cases, with a view of attempting intensification of the arsenical therapy.

Since this paper was written, a recent article by C. N. Frazier (Jour. Am. Med. Assoc. 1927, vol. 88, p. 537) has come to our attention. This author reports three cases of arsphenamine dermatitis which were treated with sodium thiosulphate. This treatment was said to have caused an aggravation of the skin lesions and the appearance of a purpuric vesiculobullous dermatitis. In view of the fact that these cases represent the only record of such an occurrence, it is reasonable to question the relation of thiosulphate to the condition described. First, it should be pointed out that sodium thiosulphate in aqueous solution is a rather unstable compound, and the heating of such a solution for 45 minutes at 45 pounds steam pressure (a procedure used in this work) may have caused a decomposition of the salt. However this may be, we would advise that steam sterilization of the thiosulphate solution be avoided and that the salt be made up with freshly distilled sterile water. Second, confusion in the nomenclature of the sulphur-containing salts may have been the cause of the reactions. Sodium thiosulphate ($Na_2S_2O_3$) has also been known under the name of sodium hyposulphite. The latter name is still in use, though the official nomenclature of the American Chemical Society has reserved the name sodium hyposulphite for the substance of the formula $Na_2S_2O_4$. This latter substance is far more toxic and more easily decomposed than sodium thiosulphate.

CONCLUSIONS

Large doses of sodium thiosulphate do not decrease the trypanocidal efficiency of arsphenamine, neoarsphenamine, or sulpharsphenamine.

Sodium thiosulphate does not exert a deleterious effect on the spirocheticidal action of sulpharsphenamine.

Sodium thiosulphate injected intravenously into rats and rabbits has a very low toxicity.

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TABLE 1.—*Effect of sodium thiosulphate (injected intravenously) on the trypanocidal action of arsphenamine in rats*

Dose per kilo	Arsphenamine only				Arsphenamine mixed in vitro with five times the amount of sodium thiosulphate				Arsphenamine preceded by 0.5 gm. per kilo of sodium thiosulphate			
	Trypanosome counts			Death, or survival	Trypanosome counts			Death, or survival	Trypanosome counts			Death, or survival
	At time of treatment	24 hours later	48 hours later		At time of treatment	24 hours later	48 hours later		At time of treatment	24 hours later	48 hours later	
mg.				*Days*				*Days*				*Days*
3.49	108,000	4,000	+++	D 5	82,000	4,000	(−)	D 9	130,000	4,000	+	D 8.
	140,000	1,600	+	D 6	104,000	22,000	+++	D 5	112,000	5,000	++	D 7.
	120,000	4,000	+	D 7	160,000	1,000	(−)	D 9	166,000	500	Trace.	D 7.
	120,000	1,000	++	D 8	90,000	6,000	+++	D 7	140,000	2,000	++	D 4.
	100,000	1,000	(−)	D 9	124,000	(−)	(−)	D 9	150,000	(−)	(−)	D 9.
5.24	114,000	(−)	(−)	D 15	166,000	(−)	(−)	D 9	96,000	Trace.	Trace.	D 9.
	174,000	(−)	(−)	D 22	152,000	(−)	(−)	Survived	88,000	(−)	(−)	Survived.
	110,000	(−)	(−)	Survived	140,000	Trace.	(−)	D 13	164,000	(−)	(−)	D 9.
	138,000	(−)	(−)	D 14	100,000	(−)	(−)	Survived	89,000	Trace.	Trace.	D 9.
	80,000	(−)	(−)	D 16	100,000	(−)	(−)	D 11	118,000	(−)	(−)	Survived.

TABLE 2.—*Effect of sodium thiosulphate (injected intravenously) on the trypanocidal action of neoarsphenamine in rats*

Dose per kilo	Neoarsphenamine only				Neoarsphenamine mixed in vitro with equal quantity of sodium thiosulphate				Neoarsphenamine preceded immediately before by 0.5 gm. per kilo of sodium thiosulphate			
	Trypanosome counts			Death, or survival	Trypanosome counts			Death, or survival	Trypanosome counts			Death, or survival
	At time of treatment	24 hours later	48 hours later		At time of treatment	24 hours later	48 hours later		At time of treatment	24 hours later	48 hours later	
mg.				*Days*				*Days*				*Days*
4.5	120,000	10,000	+++	D 5	48,000	12,000	+++	D 4	104,000	(−)	(−)	D 9.
	112,000	2,000	+++	D 7	112,000	10,000	+++	D 4	89,000	4,000	(−)	D 8.
	90,000	2,000	(−)	D 9	102,000	4,000	+++	D 7	70,000	(−)	(−)	D 10.
	68,000	Trace	(+)	D 7	108,000	8,000	+++	D 5	90,000	2,000	(−)	D 8.

6.75	106,000	Trace.	(−)	D 13	104,000	(−)	(−)	D 10	80,000	Trace.	(−)	D 9.
	116,000	(−)	(−)	D 11	92,000	Trace.	++	D 5	90,000	(−)	(−)	D 8.
	100,000	(−)	(−)	D 13	90,000	(−)	(−)	D 8	123,000	(−)	(−)	Survived.
	96,000	(−)	(−)	Survived	100,000	4,000	+++	D 5	100,000	(−)	(−)	Do.
	126,000	(−)	(−)	do	75,000	4,000	+++	D 5	90,000	(−)	(−)	Do.
					100,000	(−)	(−)	Survived				
10.0	146,000	(−)	(−)	Survived	102,000	(−)	(+)	D 8	120,000	(−)	(−)	Do.
	150,000	(−)	(−)	do	120,000	(−)	(−)	Survived	110,000	(−)	(−)	Do.
	54,000	1,000	(−)	D 9	130,000	(−)	(−)	D 9	106,000	(−)	(−)	Do.
	152,000	(−)	(−)	D 9	96,000	Trace.	(−)	D 9	110,000	(−)	(−)	Do.
	90,000	(−)	(−)	Survived	96,000	(−)	(−)	D 11	104,000	(−)	(−)	Do.
15.0	120,000	(−)	(−)	do	124,000	(−)	(−)	Survived	100,000	(−)	(−)	Do.
	138,000	(−)	(−)	do	90,000	(−)	(−)	do	154,000	(−)	(−)	Do.
	90,000	(−)	(−)	do	120,000	(−)	(−)	D 17	132,000	(−)	(−)	Do.
	100,000	(−)	(−)	do					160,000	(−)	(−)	Do.

Table 3.—*Effect of sodium thiosulphate (injected intravenously) on the trypanocidal action of sulpharsphenamine in rats*

Dose per kilo	Sulpharsphenamine only					Sulpharsphenamine mixed in vitro with equal quantity of sodium thiosulphate					Sulpharsphenamine preceded immediately before by 0.5 gm. per kilo of sodium thiosulphate				
	Typanosome counts				Death, or survival	Typanosome counts				Death, or survival	Typanosome counts				Death, or survival
	At time of treatment	24 hours later	68 hours later	92 hours later		At time of treatment	24 hours later	45 hours later	72 hours later		At time of treatment	24 hours later	68 hours later	92 hours later	
mg.					*Days*					*Days*					*Days*
15	149,000	664,000	++++	++++	D 3½	110,000	256,000	+++	+++	D 5	136,000	1,000	(−)	(−)	D 11.
	122,000	++	Dead.			120,000	216,000	++++	+++		152,000	1,500	(−)	(−)	D 9.
	158,000	484,000	++++	++++	D 3½	120,000	79,000	+++	+++	D 5	120,000	2,000	(−)	(−)	D 9.
	144,000	164,000	+++	(−)	D 8	126,000	70,000	++++	++++	D 5	138,000	Trace.	(−)	(−)	D 9.
	146,000	206,000	++++	(−)	D 5	112,000	34,000	++	(−)	D 9	144,000	Trace.	(−)	(−)	D 14.
	128,000	200,000	++	(−)	D 9										
23.5	173,000	2,000	(−)	(−)	D 11	106,000	(−)	(−)	(−)	Survived	168,000	(−)	(−)	(−)	D 17.
	170,000	1,000	(−)	(−)	Survived	112,000	(−)	(−)	(−)	do	160,000	(−)	(−)	(−)	Survived.
	190,000	2,000	(−)	(−)	D 10	122,000	(−)	(−)	(−)	D 16	176,000	(−)	(−)	(−)	Do.
	174,000	1,000	(−)	(−)	D 15	100,000	Trace.	(−)	(−)	D 19	168,000	(−)	(−)	(−)	Do.
	126,000	(−)	(−)	(−)	D 16	129,000	Trace.	(−)	(−)	D 15	140,000	(−)	(−)	(−)	Do.
	136,000	(−)	(−)	(−)	D 12										

TABLE 4.—*Toxicity of sodium thiosulphate (intravenously) in rats*

Dose (gms.) per kilo	Result	Symptoms
4 (50% sol.)	Dead, 13 minutes	Convulsions at end of injection with cessation of respiration and collapse. In case animal recovers, respiration is resumed within a few seconds and recovery gradually takes place
Do	Survived	
Do	do	
Do	do	
Do	do	
3.25 (50% sol.)	Dead, 2 minutes	Same as above in some cases, in others symptoms are less marked.
Do	Dead, 15 minutes	
Do	Dead, 5 minutes	
Do	Survived	
Do	do	
2 (20% sol.)	do	No reaction during injection, except in 1 case. Pallor, depression, and slightly irregular respiration.
Do	do	
Do	do	
Do	do	
Do	do	
1 (20% sol.)	do	Depression. Respiratory distress in 1 animal.
Do	do	
Do	do	
Do	do	
Do	do	

CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED FEBRUARY 15, 1927, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT[1]

In most of the endemic plague areas the reported incidence of cases during the past winter was favorable as compared with previous years. Telegraphic reports from the Far Eastern ports showed a low prevalence of plague, cases being reported only in ports which are frequently infected. During the first five weeks of 1927, there were 27 cases at Rangoon, 13 at Colombo, 2 at Bombay, 6 at Surabaya, and 1 case each at Samarang and Makassar. The number of deaths from plague reported in India during December, 1926, was only a little more than two-thirds the number reported in the corresponding month of 1925. The incidence was exceptionally low in Burma and in southern India; only in the central Provinces was the plague prevalence markedly less favorable than in the preceding year. In Java the plague situation has improved steadily for several years, and in the four weeks ended November 27 there were 780 deaths reported, as compared with 1,035 and 1,796, respectively, during the corresponding periods of the preceding two years. Only 10 cases of plague were reported in Siam during four weeks in December; and in French Indo-China during January, 12 cases were reported in Cambodia and 1 case was reported at Kwang-Chow-Wan.

Few cases of plague were reported in northern Africa during January. In Algeria, 7 cases were reported—4 at Bona and 3 at Bugeaud. In Tunisia, 19 cases were reported up to January 20 in the districts which had become infected late in 1926. In Egypt

[1] From the Office of Statistical Investigations.

only 2 cases were reported during January, in addition to 11 cases reported from a center in the western desert Province.

In the Union of South Africa 4 cases of plague were reported during the first two weeks of January, as compared with 15 cases during the preceding two weeks. Most of the districts where plague remains endemic are in the Orange Free State. Plague was less prevalent in Kenya in the second half of 1926 than in the preceding three years. In Uganda the incidence was relatively high, 96 cases being reported in the last two weeks of November. The January incidence of plague in Madagascar (378 cases) was the highest on record for any month except December, 1925, when 400 cases were reported. In the Portuguese colony of Angola 34 cases of plague were reported in December, and 22 cases were reported in the district of Tivouane in Senegal.

In South America a few cases of plague were reported in January in an inland Province of Argentina, and cases were reported in November from Rio de Janeiro, Guayaquil, and Peru.

Cholera.—The serious epidemic of cholera in the Tonkin Province of French Indo-China, which was referred to last month, reached its peak in December, and by the end of January very few cases were being reported. No other Province showed any serious increase in the number of cases.

TABLE 1.—*Cholera cases reported in French Indo-China from December 1, 1926, to January 31, 1927*

Ten days ended—	Cambodia	Cochin-China	Laos	Annam	Tonkin
Dec. 10	16	9	0	76	664
20	4	12	0	54	1,056
31	15	36	0	70	871
Jan. 10	4	24	0	26	181
20	1	78	0	19	49
31	4	71	0	20	13

Cholera also practically disappeared from most of the far eastern ports during January. Calcutta was the only port seriously infected at the end of the month.

TABLE 2.—*Cholera cases reported in the principal maritime towns of the Far East between January 2 and February 5, 1927*

Maritime town	Week ended— January 8	15	22	29	Feb. 5	Maritime town	Week ended— January 8	15	22	29	Feb. 5
Bombay (deaths)	0	1	0	0	0	Turane (deaths)	0	1	0	0	0
Madras (deaths)	4	0	0	0	0	Haiphong (deaths)	5	3	0	0	0
Nagapatam (deaths)	2	5	5	1	0	Bangkok (cases)	0	5	0	1	1
Calcutta (deaths)	54	65	58	38	29	Osaka (cases)	0	0	1	0	0
Rangoon (deaths)	1	0	1	1	1						

Cholera was less prevalent in India during December than a year ago. Most of the cases reported were in Bengal and Madras Presidency, the two principal endemic centers of the disease.

In Siam the incidence of cholera decreased during December, 55 cases being reported during the four weeks from January 1 as compared with 86 in the preceding four weeks.

The cholera situation in China during the autumn months is summarized in the Epidemiological Report as follows:

In September last cholera was still prevalent in most Provinces of China; it was epidemic in Kwantung, Hunan, and Shantung, causing a high mortality in the latter Province. In October cholera was reported as being epidemic at Amoy, prevalent at Wenchow, and sporadic at Foochow, Ningpo, Soochow, Changsha, and Chungking. In November it was still prevalent at Wenchow, but was reported to have disappeared at Foochow and Soochow. It was stated that cholera was not present in October and November at Canton, Hankow, Chefoo, and Tientsin. Shanghai was free from cholera in November and December.

Yellow fever.—The following cases of yellow fever are reported: 24 in the Gold Coast and 3 in Nigeria during November; 5 in Senegal during January—1 in Baol district and 4 in Rufisque.

Typhus fever.—Few European countries report more than sporadic cases of typhus fever, and in the countries of eastern Europe, where the disease is somewhat prevalent during the winter months, no unusual incidence had been reported up to February 15. In Poland 183 cases were reported during the four weeks ended January 15, as compared with 293 during the corresponding period of the preceding winter. In Rumania there were 174 cases during the last three weeks of December, an increase over 1925, when there were 125 in the entire month. In the district of Sarajevo, in Yugoslavia, 43 cases were reported last January, as compared with 15 in January, 1926. Only 13 cases were reported during the first half of January in sub-Carpathian Ruthenia, where the disease was rather prevalent last year.

As usual, sporadic cases were reported from Palestine, Egypt, Tunisia, and Algeria, while in French Morocco cases were more numerous, 111 cases being reported in January.

Typhus fever was more prevalent in the Union of South Africa than during the preceding year; 162 cases and 22 deaths were reported in December, 1926, as against 78 cases and 9 deaths in December, 1925. Most of the cases (153) occurred in Cape Colony, and all were among the native population.

Relapsing fever.—Further information concerning the serious epidemic of relapsing fever in Anglo-Egyptian Sudan is given in a special note received from the Sudan Medical Service.

The main incidence of the disease was in the Zalingei area, where the mortality was very heavy. The district commissioner made

careful counts of the villages in the northern part and estimated that not less than 10,000 deaths had occurred in the whole area in a population of 45,000.

The report states:

Further extensions eastward had occurred in El Fasher Merkar on the eastern slopes of Gebel Marra, at Koleikli and Gueghin in the Nyala district, and in Dar Gimr. The outbreak in and around Koleikli and Gueghin was specially serious, as it brought the disease within 110 miles of the Kordofan border, and the position was made additionally grave by the fact that there was a constant movement of cattle driven from this area for sale at Nahud and that it was difficult to control this movement.

The case mortality is given as from 60 to 80 per cent. Admitting that these figures are probably too high, there would still appear to be a tendency of the virulence to become exalted, as the case mortality varied from 18 to 40 per cent in Nigeria, from 12 to 17 per cent in West Africa, and seldom exceeded 5 per cent in Europe. The explanation of this increase may, however, also be looked for in local conditions.

A decrease of the epidemic may reasonably be expected from April to the end of June. During the rains which follow, an exacerbation of the disease is likely to occur, and after that period, when there is water and grazing everywhere, there will be a danger of the disease spreading to the remainder of Sudan.

Smallpox.—A comparison of the reported incidence of smallpox in European countries during the last three years shows a constant improvement in most countries. England and France were the principal countries showing an increase in 1926 over 1925. In England the cases in January, 1927, show a continued serious increase.

TABLE 3.—*Smallpox cases reported in various countries, 1924–1926*

Country	1924	1925	1926	Country	1924	1925	1926
Albania	-------	0	0	Lithuania	53	12	3
Germany	16	23	7	Luxemburg	0	0	2
England and Wales	3,765	5,363	10,222	Malta	0	84	20
Austria	0	0	0	Norway (towns)	0	1	0
Belgium	12	31	13	Netherlands	3	2	13
Bulgaria	5	0	1	Poland	801	77	74
Denmark	25	0	0	Rumania	9	28	7
Danzig	0	0	0	Yugoslavia	330	14	4
Scotland	[1] 4	[2] 2	[2] 0	Sweden	1	0	0
Spain (deaths)[1]	329	629	108	Switzerland	1,234	329	53
Estonia	4	5	6	Czechoslovakia	2	1	1
Irish Free State	0	0	0	Saar Territory	0	0	0
Finland	1	2	1	U. S. S. R. (European Governments and territories)[1]	17,553	10,008	5,039
France	210	456	554	Algeria	483	1,747	2,473
Gibraltar	6	3	0	Egypt	799	762	2,679
Greece	250	23	104	Tunisia	606	1,270	198
Hungary	1	2	1	Palestine	23	0	3
Italy	430	204	112				
Latvia	25	17	3				

[1] Whole country. [2] Refers to 16 principal towns only.

The incidence of smallpox was also much higher in Egypt and Algeria during 1926 than in either of the preceding two years. A marked improvement was shown in the smallpox situation in Tunisia.

Smallpox was prevalent in Japan, Korea, Kwantung, Manchuria, and Formosa during the first half of 1926, but very few cases were reported toward the end of the year. A severe epidemic at Cal-

cutta was in progress at the beginning of 1927. Smallpox has been unusually prevalent in India for the past two years.

A continued diminution in the incidence of smallpox has occurred in the Union of South Africa during recent years and the prevailing type has also become very mild. A rather severe outbreak, however, occurred last October and November, which was limited to the native population. There were 72 cases and 16 deaths reported, nearly all in the Province of Natal.

The smallpox epidemic in Rio de Janeiro continued to decline in December; 60 cases and 23 deaths were reported in the three weeks ended December 25 as compared with 80 cases and 41 deaths in the preceding three weeks. During the year 4,196 cases and 2,254 deaths were reported.

Enteric fever.—The seasonal decline in enteric fever came somewhat later in 1926 than usual in Europe, and the incidence in the fourth quarter of the year, therefore, was higher than in the corresponding period of the preceding year in a number of countries. The situation was particularly unfavorable in Italy (where the incidence for this period was nearly twice as high as in 1925), in Germany, Poland, Hungary, and France. Among the very few countries which showed any marked improvement over the previous year were Rumania, Greece, and Austria.

TABLE 4.—*Enteric fever cases reported in various European countries during the last two quarters of 1925 and 1926*

Country	1925		1926	
	Third quarter	Fourth quarter	Third quarter	Fourth quarter
Albania	6	1	30	43
Germany	5,916	2,330	6,334	3,220
England and Wales	1,012	710	1,007	674
Austria	1,041	718	952	590
Belgium	410	274	366	237
Bulgaria	909	1,319	547	1,579
Denmark	163	48	116	45
Danzig	47	19	47	33
Scotland [1]	96	47	109	54
Spain [2]	1,479	1,292	1,641	----------
Estonia	303	227	223	181
Irish Free State	143	111	91	65
Finland	575	335	527	280
France	2,146	1,852	2,351	2,851
Gibralter	8	6	0	7
Greece	275	575	278	329
Hungary	2,063	2,336	2,319	3,362
Italy	9,955	8,884	13,597	16,395
Latvia	368	209	310	217
Lithuania	191	172	266	258
Luxemburg	21	11	38	52
Malta	117	125	122	175
Norway, towns of	100	38	44	32
Netherlands	476	257	486	341
Poland	4,514	3,513	5,487	5,935
Rumania	2,736	2,459	1,788	[3] 1,920
Yugoslavia	1,324	1,494	1,106	1,973
Sweden	544	186	477	172
Switzerland	166	84	118	146
Czechoslovakia	2,325	2,008	2,336	2,508
Saar Territory	70	70	45	57
U. S. S. R. (European territories, including Ukraine)	48,476	39,942	27,147	----------
Total (not including Spain and U. S. S. R.)	38,020	30,220	41,517	43,643

[1] Data for 16 larger towns. [2] Deaths only. [3] Third decade of December missing.

Acute poliomyelitis.—The poliomyelitis outbreaks which occurred in England and Germany during the late autumn of 1926 had shown a marked diminution in incidence toward the close of the year, but had not reached the level of the preceding year. A considerable incidence of this disease was reported also in the United States during the autumn months.

TABLE 5.—*Poliomyelitis cases reported in England, Germany, and the United States during the second half of 1925 and 1926, by four-week periods*

Four weeks	England and Wales		Germany		United States
	1925	1926	1925	1926	1926
June 20–July 17	19	26	20	57	133
July 18–Aug. 14	28	98	31	160	259
Aug. 15–Sept. 11	59	181	57	454	492
Sept. 12–Oct. 9	56	227	53	419	414
Oct. 10–Nov. 6	43	244	45	238	281
Nov. 7–Dec. 4	28	172	37	100	152
Dec. 5–Jan. 1	27	99	16	74	78

Fewer cases than in 1925 were reported in Sweden, Norway, Denmark, Finland, and Italy. In the Netherlands a small outbreak was reported with 43 cases during the second half of 1926. In Switzerland 86 cases were reported during the last 6 months of 1926, more than in the corresponding period of the preceding two years, but less than in 1923.

Lethargic encephalitis.—The influenza epidemic in Europe was not accompanied by any increase in the reported number of cases of lethargic encephalitis. In England and Wales 138 cases were reported during the first four weeks of 1927, as compared with 208 in the corresponding period a year ago. Only sporadic cases have been reported from other countries.

Influenza.—Reports on the recent influenza epidemic in European countries, which are summarized in the Monthly Epidemiological Report, have been made available earlier through special bulletins which have been printed in the PUBLIC HEALTH REPORTS.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for February, 1927

The accompanying table is taken from the Statistical Bulletin for March, 1927, published by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company for February, 1927, as compared with January and with February and year, 1926. The rates are based on the

records of approximately 17,000,000 insured persons of the industrial populations of the United States and Canada.

The health conditions in this group of persons for February, as revealed by the death rates, continued the good showing made for January, the death rate for February being 9.6 per 1,000 persons as compared with 9.97 for February a year ago. (In recent years the gross death rate for this group of persons has been about 73 per cent of the rate for the registration area.) The usual seasonal increase in the February mortality over the preceding month was noted.

Comparison of the rates for the important causes given in the table, show pronounced declines from the rates for last year for measles, whooping cough, influenza, heart disease, and pneumonia, and some improvement for cerebral hemorrhage and diarrheal complaints. The rates for typhoid fever, scarlet fever, diphtheria, diabetes, respiratory conditions other than pneumonia, and puerperal diseases were more or less higher than for February, 1926.

The bulletin states:

While in no instance has there been an alarming rise so far this year in the mortality from any disease, the higher death rates recorded for diphtheria in both January and February are somewhat disconcerting items. Beginning with 1922, this disease has been registering a new low point every year. This continuous decline brought about a reduction from a death rate of 23.8 per 100,000 in 1921, to 9.5 in 1926 (a drop of 60 per cent), and it was fully expected that it would go on through 1927 and succeeding years, as a result of the increasingly intensified campaign for immunizing children against diphtheria which has been a demonstrated success in eliminating the disease from a number of communities. But we now have a rise in the death rate which, although small, is nevertheless a challenge to public health workers throughout the country. Just what has been responsible for the increased mortality so far this year can not be determined at this time. Between 1900 and 1921 diphtheria was shown to have had a certain periodicity, peaks occurring with much regularity at intervals of about seven years, with half-peaks of three or four years. This can hardly be the explanation of the increase shown so far this year. A more probable explanation is that the type of the disease now prevalent is of above-average virulence. At any rate, the situation calls for increased watchfulness and intensified effort to stamp out diphtheria.

Death rates (annual basis) for principal causes per 100,000 lives exposed, February, 1927, January, 1927, and February, 1926

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed [1]			
	February, 1927	January, 1927	February, 1926	Year 1926 [2]
Total, all causes	956.6	928.2	997.0	942.7
Typhoid fever	3.1	2.4	2.6	4.2
Measles	5.5	3.6	13.2	10.2
Scarlet fever	5.2	3.0	4.6	3.4
Whooping cough	5.3	6.9	7.5	9.6
Diphtheria	11.3	13.6	9.8	9.7
Influenza	30.0	26.1	37.6	31.0
Tuberculosis (all forms)	99.7	80.2	99.8	98.7
Tuberculosis of respiratory system	88.5	69.2	88.6	86.5
Cancer	75.5	72.7	70.1	73.5
Diabetes mellitus	18.9	17.1	16.0	16.7
Cerebral hemorrhage	57.1	57.3	60.4	55.5
Organic diseases of heart	136.7	146.5	146.3	133.9
Pneumonia (all forms)	118.0	118.5	139.6	97.9
Other respiratory diseases	18.6	14.9	16.1	13.1
Diarrhea and enteritis	14.3	14.1	15.2	29.8
Bright's disease (chronic nephritis)	80.2	72.3	80.0	73.3
Puerperal state	14.9	13.8	14.7	15.3
Suicides	7.8	7.6	5.7	7.6
Homicides	7.2	5.8	5.0	7.0
Other external causes (excluding suicides and homicides)	54.0	61.8	53.2	62.2
Traumatism by automobiles	11.5	12.8	11.4	16.7
All other causes	193.5	189.5	199.7	190.4

[1] All figures include infants insured under 1 year of age.
[2] Based on provisional estimate of lives exposed to risk in 1926.

POPULATION OF HOSPITALS FOR THE INSANE

Data for September, 1926

Reports for the month of September, 1926, were received from 141 institutions for the care of the insane.

There was an increase in the number of patients during the month of 511, or 0.26 per cent. The number in the hospitals increased 0.11 per cent, and the number on parole or otherwise absent from the institutions increased 2.07 per cent.

First admissions constituted 77.19 per cent of the total admitted during the month; readmissions, 14.75 per cent, and 8.06 per cent of the total admitted were transfers or not accounted for.

Of the patients discharged, 25.42 per cent were recorded as recovered; 51.97 per cent as improved; 15.54 per cent as unimproved; 5.3 per cent as without psychosis; and 1.77 per cent as otherwise discharged or not accounted for.

There were 1,063 male patients per thousand females at the close of the month.

The patients on parole on September 30 constituted 7.85 per cent of the total.

During September there were 1,327 deaths of patients of the hospitals reporting, which gives an annual death rate of 80.68 per thousand under treatment.

Movement of patient population in 141 hospitals for the care of the insane during September, 1926

Number of institutions included:	
Public	119
Private	22
Total	141
Patients on books Sept. 1, 1926:	
In hospitals	180, 717
On parole or otherwise absent, but still on books	15, 095
Total	195, 812
Admitted during September:	
First admissions	3, 322
Readmissions	635
Admitted by transfer	340
Not accounted for	7
Total received during September	4, 304
Total on books during month	200, 116
Discharged during September:	
As recovered	561
As improved	1, 147
As unimproved	343
As without psychosis	117
Otherwise discharged	39
Total discharged during September	2, 207
Transferred	259
Died	1, 327
Total discharged, transferred, and died during September	3, 793
Patients on books Sept. 30, 1926:	
In hospitals	180, 915
On parole or otherwise absent, but still on books	15, 408
Total	196, 323
Male patients	101, 137
Female patients	95, 186

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for June and July, 1926

Reports for the month of June, 1926, were received from 25 institutions for the care of the feeble-minded. The reports for July, 1926, included 31 institutions, but some institutions which are included in the June tabulation did not report for July and others were added to the list.

The following table gives a summary of the reports:

Patient population of institutions for the feeble-minded, June and July, 1926

	June, 1926	July, 1926
Number of public institutions included	23	30
Number of private institutions included	2	1
Total	25	31
Patients on books first day of month:		
In institutions	15,911	24,444
On temporary leave	1,930	3,806
Total	17,841	28,250
Admitted during month:		
First admissions	109	290
Readmissions	3	12
Admitted by transfer	0	0
Not accounted for	2	2
Total received during month	114	304
Total on books during month	17,955	28,554
Discharged or placed on indefinite parole during month	25	130
Transferred to other institutions	13	11
Died during month	36	69
Total discharged, transferred, and died during month	74	210
Patients on books last day of month:		
In institutions	15,739	24,145
On temporary leave	2,142	4,199
Total	17,881	28,344
Males	9,306	14,620
Females	8,575	13,724

Analysis of movement of patient population of institutions for the feeble-minded, June and July, 1926

	June, 1926	July, 1926
Per cent increase in number of patients during month:		
Total	0.22	0.33
In institutions	[1] 1.08	[1] 1.22
On temporary leave	10.98	10.33
Per cent of total patients absent on temporary leave at end of month	11.98	14.81
Per cent of total admissions (excluding transfers) which were—		
First admissions	95.61	95.39
Readmissions and not accounted for	4.39	4.61
Per cent of total patients discharged during month (based on average number for the month)	.14	.46
Males per 100 females at end of month	108.52	106.52
Deaths per 1,000 patients under treatment (annual basis)	24.39	28.45

[1] Decrease.

KEY-CATALOGUE OF THE CRUSTACEA AND ARACHNOIDS OF IMPORTANCE IN PUBLIC HEALTH

In Hygienic Laboratory Bulletin No. 148 the United States Public Health Service has prepared a Key-Catalogue of the Crustacea and Arachnoids of Importance in Public Health as a companion number of the Key-Catalogues to the Protozoa and Worms Reported for Man.

This new publication gives keys down to the genera, and under each genus an alphabetical list of the species, with synonyms, geographic distribution, and medical importance. The publication is not for popular distribution, but is intended for use by health officers, food inspectors, and persons interested in medical zoology. Application for copies should be addressed to the Surgeon General, United States Public Health Service, or the bulletin can be obtained by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Certain Crustacea are of importance in public health because of their rôle either as transmitters of parasitic diseases (such as lung fluke disease) to man or as cause of food poisoning or wounds, and occasionally, though rarely, as parasites of man.

Many scorpions and thousand leggers are poisonous to man, and occasionally severe headaches are recorded as caused by the accidental presence of a centipede or a multipede in the nose.

Many different mites cause conditions known as itch. Some of these mites are normally parasitic on man, and others are transmitted to man from various animals or from handling grain or sleeping on straw mattresses. Some of them transmit serious diseases to man.

Some ticks may cause tick paralysis, while others may transmit serious diseases (as Rocky Mountain spotted fever) to man.

There are scores of these various animals catalogued in this international Who's Who in the world of medical pests, prepared by Professor Stiles, of the United States Public Health Service, and Doctor Hassall, of the United States Bureau of Animal Industry. Each species is cited in its accepted place in the system of classification. The bulletin is a unique document in medical and public health literature.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Some Experiences in the Control of Fly Breeding.—Major E. B. Allnut, M. C. Royal Army Medical Corps, *Journal of the Royal Army Medical Corps*, Vol. 47, No. 2, August, 1926, pp. 105–120. (Abstract by R. E. Tarbett.)

This article covers a method developed for the storage of stable manure so as to prevent fly breeding under conditions existing in Bermuda, together with descriptions of the experiments leading up to the method adopted. The control problem was a real one, as horses are the only means of transportation, some

3,000 horses being stabled in the 19 square miles. Climatic conditions are favorable for continuous fly breeding. Manure must be carefully saved for fertilizer. Experiments were carried on in connection with fly breeding in manure, with particular reference to the larvæ.

Various methods of treatment and storage of manure were investigated. Spraying, burning of the surface layers, spreading, and storage in closed receptacles were not found satisfactory. The Baber method (so-called) was found more satisfactory. This method called for a platform surrounded by a wire fence and having around it gutters or larvæ traps, the manure being firmly stacked against the wire walls. A modification of the Baber method was adopted, the existing walled manure pits being used.

As arranged, the bins had smooth, impervious floors and walls (cement) and were open on one side. The top of the walls were built with an over-hang to prevent the larvæ from crawling over, and a gutter, built in front of the bin, or pit, acted as a larvæ trap. This gutter was kept partly filled with a creosote preparation. The bins were made to hold 10 days' storage of manure. In operation, the manure was packed solid, leaving no loose material. Straw and litter were raked off prior to stacking. Every second day the front surface was raked off and deposited in the hot deeper portions. During dry weather the pack was watered daily to keep it moist. At the end of the 10-day period the front surface was turned in and the whole was well beaten down. Earth mixed with creosote or oil was spread over the surface. The mass was allowed to stand for 10 days before being removed. With proper operation this method proved successful.

Why We Do Not Eliminate Malaria More Rapidly.—J. A. LePrince. *New Orleans Medical and Surgical Journal,* Vol. 79, No. 6, December, 1926. pp. 420–422. (Abstract by L. D. Fricks.)

This paper was read before the Mississippi State Medical Association and was intended primarily as a plea to local health officials, particularly county health officers, for more faith and greater effort in malaria control work. Mr. LePrince does not leave his hearers in doubt as to what he thinks about malaria control in the United States. Malaria control is an important part of the health work of many county health officers in the South. It is frequently neglected by them for many reasons which are pointed out. Malaria control was accomplished on the Panama Canal Zone years ago, and it can be done in the southern United States. It will repay the county health officer who does it many times over, but it can not be done in a faint-hearted or half-spirited way.

The Frequency of Botulism.—Anon. *Journal of American Medical Association,* Vol. 86, No. 7, February 13, 1926, pp. 482–483. (Abstract by Paul S. Fox.)

Since the report by Geiger, Meyer, and Dickson in 1922, data on 56 outbreaks of botulism have been collected, 24 of which have been proved toxicologically. Including cases back to 1918, there has been an average of approximately 13 outbreaks annually. Foods causing the outbreaks were as follows: *Home canned*—String beans, corn, asparagus, spinach, chili sauce, pimento, beef, figs, chicken, mixed pickles, and salmon; *commercially canned*—olives, spinach, sardines, clam juice, duck paste, peas, and meat. In the 56 outbreaks, information relative to spoilage is available in 41; 18 of the foods implicated were stated to be normal in odor and taste, and there was nothing unusual in the appearance of the container. Spoilage as indicated by odor and appearance is therefore a doubtful criterion in botulism.

Forty-six outbreaks occurred in the West; 7 in the Middle West, and 3 in the East. None were reported from the Southern States.

The City Health Officer in Relation to the Local Milk Plant.—George B. Taylor. *Nation's Health*, Vol. 8, No. 12, December 15, 1926, pp. 807–808 and 860. (Abstract by R. C. Beckett.)

A closer personal contact by the health officer with the actual operation activities of a pasteurizing plant would be beneficial, especially to the health officer. Ideal supervision of pasteurizing plants by the health officer can be accomplished only by having an inspector on the spot. This method the author feels to be too autocratic. Another plan of control suggested is to control recording thermometers and charts with the key in the hands of the inspector, but this method has too many practical operating objections. Method advocated for control is personal inspection by health authorities of individual temperature charts checked by intimate knowledge of each type of pasteurizing plant, so that the charts mean exactly what the health officer wants them to mean. For instance, in the vat type unless the time of emptying a vat is known, the length of time at which the milk was held is not known definitely.

Rural Water Supplies.—By B. Evan Parry. Publication No. 17, "Sanitation," issued by the Canadian Department of Health. Abstract by H. C. L. in *The World's Health*, vol. 8, No. 1, January, 1927, pp. 24–28. (Abstract by H. B. Foote.)

Although various methods of obtaining, distributing, and purifying water have come down from antiquity, water supplies are still used without proper protection and purification. Observations indicate that an average of 75 per cent of Canadian wells are within 100 feet of the back door of the house and in the direction of the barn. As a rule the nearer the source of contamination the greater the danger, but much depends on the character of the soil.

Water for domestic use should be clear, lustrous, odorless, colorless, wholesome, soft, neither strongly acid nor alkaline, and its temperature about 40° F.

Directions for disinfecting water with hypochlorite of lime: Make a stock solution of three level teaspoonfuls in a quart of water. Add one teaspoonful of this stock to a gallon of water and allow to stand for 20 minutes.

A salt test and a fluorescein test are given for determining pollution of a well from a cesspool.

Typhoid and paratyphoid fevers, cholera, dysentery, diarrhea, and certain obscure maladies are caused or influenced by contaminated water. Water may spread such diseases of livestock as hog cholera, anthrax, and foot-and-mouth disease.

An illustration of a poorly constructed and improperly located well is given, and a chart is presented showing the decline of typhoid fever with the increase in population supplied with public water.

Solving Water Problems of Highway Sanitation.—W. Scott Johnson. *Water Works Engineering*, vol. 80, No. 3, February 2, 1927, pp. 143-144 and 162. (Abstract by Frank Raab.)

The marvelous growth of the tourist traffic makes new measures of sanitation necessary. The most important of these measures are safe water supplies for all tourists' camps and a proper disposal of all excreta. Missouri has begun the construction of comfort stations in all tourist camps. There are three grades of comfort stations. Each grade is supplied with a safe water supply; but beyond that, accommodations vary from a well-equipped camp, which is grade A, to one that has only the most necessary accommodations, which is grade C. At the approach of the town a sign informs the tourist what grade of camp is available.

Proper Design Important in Operation of Coagulation Basins.—August V. Graf, chief chemical engineer, St. Louis Water Works. *Water Works Engineering*, vol. 80, No. 5, March 2, 1927, pp. 276 and 311. (Abstract by William L. Havens.)

For many years the design of filters has received considerable stress, while the design of coagulation basins has been neglected. The rate and thoroughness of the subsidence of the floc depends upon the design and operation of the settling basin as well as upon the amount of chemical used, the thoroughness of mixing, and the condition of the suspended matter. With properly designed and properly operated coagulation basins the filters need serve only as strainers to remove the suspended matter and bacteria along with the floc. Satisfactory settlement will take place at mean velocities of from 2 to 4 feet per minute, and the size of each basin should be such that the flow across the shorter dimension at a mean rate of 2 feet per minute will provide a detention period of at least two hours in each basin. There should be at least two coagulation basins in order to provide for cleaning. Coagulated water should enter and leave the basin by means of multiple inlets and outlets so as to provide little disturbance, and should flow through the basin in a straight line without interference from baffles. Changes in velocity, caused by sudden increases in the amount of water being pumped, should be guarded against. A fall of a few inches in a basin is enough to break up the floc. Part of the basins should be by-passed whenever too clear water is leaving them. In intermittently operated plants provision should be made so that a portion of freshly mixed raw water can be added to the basin effluent. Basin bottoms should have a decided slope to the outlet gates for cleaning purposes. The sludge line in the basin should be watched, and when this becomes too high the basin should be taken out of service and cleaned. The amount of turbidity in the applied water should not exceed 15 p. p. m. if an effluent containing 0.5 p. p. m. is desired. The bacterial reduction will usually be as great as the reduction in turbidity. The bacterial removal is of importance, because the fewer the bacteria remaining in the applied water the less the amount of chlorine required and the less the chance of developing tastes in the water.

The Use of Sulphur Bacteria as Indicators of Pollution.—Prof. David Ellis. *Water Works Engineering*, vol. 80, No. 5, March 2, 1927, p. 311. (Abstract by William L. Havens.)

A paper presented before a section of the British Association at Oxford by Prof. David Ellis emphasizes the need of more immediate methods for the detection of pollution in water than the usual total count and *B. coli* determination. It is pointed out that sulphur bacteria and particularly *Beggiatoa alba* are easily identified, and if found in a clear and transparent water are unmistakable signs of pollution.

Mechanical Cleaning of Slow Sand Filters.—George G. Schaut. *Water Works*, vol. 66, No. 2, February, 1927, pp. 59–63. (Abstract by M. S. Foreman.)

During the early days of slow-sand filters at Philadelphia (1912) large open courts were provided for storing sand after it had been washed. The dirty sand was wheeled in barrows to the sand washers. About a year later sand was removed from the filter by means of portable ejectors and hose. This method was improved by E. M. Nichols. The Nichols scraper consists of a structural steel chassis mounted on caterpillar treads similar to the ordinary tractor; it is driven by a 2-horsepower electric motor. Across the front of the machine is a screw conveyer which scrapes the sand and carries it to a hopper located at the center, just back of the screw. The machine is pushed into the sand run on a truck, suspended from the roof by means of a chain hoist, the truck is removed, and the machine is lowered until it rests on the surface of the sand.

Blaisdell type of filter-washer.—In 1900 Blaisdell conceived the idea of washing sand under water by means of a machine, using the principle of agitation and upward flow of water. The machine resembles the ordinary type of crane and was built to run on tracks attached to the side walls of the filter. It consists of a steel compartment or chamber which could be raised or lowered and also

moved across the filter from side to side on tracks. By pumping water through a hollow wheel, inside the chamber, the sand is washed by jets of water as the machine moves along the track.

Blaisdell belt-tread filter-washers.—The track machine was limited to filters of special design, so a more adaptable washer was built. This machine consists of a structural steel chassis upon which are mounted a gasoline engine, the driving mechanism, and a washing head. A belt tread, driven by sprockets and chains, is located on each side of the chassis. This tractor type of machine travels bodily on the sand. By means of a ramp at the sand-run entrance, the washer enters the filter and operates entirely under its own power.

Rate of filtration, loss of head, turbidity, and bacteria removal from filters cleaned by Nichols and Blaisdell machines are shown in five charts.

Relation of Public Water Supplies to the Problem of Public Health.—E. L. Bishop, Commissioner of Public Health, Nashville, Tenn. *Water Works Engineering*, vol. 80, No. 5, March 2, 1927, p. 284. (Abstract by Williams L. Havens.)

The general procedure followed by the division of sanitary engineering for the State of Tennessee in relation to public water supplies includes: (1) approval of proposed public and quasi-public supplies; (2) supervision of existing public and quasi-public supplies; (3) application by the State department of health of remedial measures to suppress water-borne typhoid fever epidemics; (4) examination and approval of water supplies for drinking and culinary purposes for common carriers; and (5) attention to private water supplies, but with direct control practiced by the local health officials. Cooperation is being obtained between waterworks officials and health officials in an effort to obtain a supply of safe water for each community.

Incinerator.—E. B. Kay. United States Patent Office. Patented April 7, 1925. Patent No. 1532758. 6 pages, with 2 diagrams. Abstract by C. W. Hutt in the *Bulletin of Hygiene*, vol. 2, No. 1, January, 1927, pp. 52–54.

"A new feature in this incinerator is the design of the furnace which is of an inverted U-shape, providing a semicylindrical roof adopted to avoid all lateral expansion and contraction due to high temperatures. Most furnaces in which a high temperature is attained require the replacement of the fire-brick lining at short intervals and often the rebuilding of a considerable portion of the interior of the furnace on account of distortion produced by the alternate heating and cooling of the parts. In this design the expansion and contraction is limited to vertical distortion in the walls by placing between the outer walls and the fire-brick lining a heavy wall of brick made of conducting diatomaceous earth (sil-o-cel). This also prevents radiation of heat and uncomfortable temperatures for the workmen.

"The guaranteed rate is 5 tons per hour, but in a trial 22 tons of wet garbage were consumed in two hours; no gases were visible in the combustion chamber, and no unburned gases or waste given off from the chimney stack. A temperature of 2,200 degrees was reached. Two workmen, with an additional one in the rush season, are stated to be ample to operate the incinerator."

New Type of Town's Refuse Destructor.—Anon. Surveyor, 1926, vol. 70, pp. 365–366. Abstract by C. W. Hutt in the *Bulletin of Hygiene*, vol. 2, No. 1, January, 1927, pp. 54–55.

"Far-reaching claims are made for a plant evolved after four years' experiment under the auspices of the Glasgow Corporation. The original plant consisted of a slowly rotating, inclined cylinder, to the upper end of which the refuse was supplied. From the lower end clinker was automatically discharged in conveniently small pieces (diameter, 3 inches by 1 inch). A very high temperature was attained owing to the continuous agitation of the fuel, and complete combustion was obtained (including melting of tins) of 150 to 175 pounds of refuse per hour

per square foot of effective grate area. The difficulty with this plant was that as the cylinder rotated, the lining plates became overheated by exposure to the fierce flame from the burning refuse, with consequent sticking of clinker and interference with air blast, necessitating manual clinkering.

"This was overcome by substituting for the cylinder an inclined, concave grate representing that part of the cylinder which was continually covered by fuel, and by imparting to this grate a movement corresponding to that of the fuel bed of the cylinder. The grate is made of links as in chain grate stokers and moves in an upward direction. The flames now play upon a tubular boiler instead of upon the upper part of a rotating grate. The temperature of the grate links does not now rise above a black heat, and there is no sticking of the clinker which falls out automatically into a water trap. Owing to the high temperature the clinker discharged is very hard. A constant and uniform steam generation is claimed from the continuous operation of the plant. The absence of connecting flues does away with one source of heat loss. We are told that in the place of a large number of cells of the ordinary type a single inclined grate of relatively small dimensions can be designed to serve a boiler of large capacity; this, with the absence of connecting flues, would, of course, reduce the total space occupied. Feeding and clinkering being mechanical and automatic, supervision alone is necessary and manual labor is eliminated. No high chimney is said to be required and 'only a grayish vapor is ejected from the chimney.'"

DEATHS DURING WEEK ENDED APRIL 2, 1927

Summary of information received by telegraph from industrial insurance companies for week ended April 2, 1927, and corresponding week of 1926. (From the Weekly Health Index, April 7, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 2, 1927	Corresponding week, 1926
Policies in force	67, 195, 853	63, 940, 731
Number of death claims	14, 265	15, 884
Death claims per 1,000 policies in force, annual rate	11. 1	13. 0

Deaths from all causes in certain large cities of the United States during the week ended April 2, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 7, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 2, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 2, 1927 [2]
	Total deaths	Death rate [1]		Week ended Apr. 2, 1927	Corresponding week, 1926	
Total (69 cities)	7, 738	13. 5	[3] 17. 4	816	[3] 1, 178	[4] 68
Akron	46			6	7	65
Albany [5]	35	15. 2	29. 8	3	11	63
Atlanta	70			8	11	
White	30			2	4	
Colored	40	(6)		6	7	
Baltimore [5]	229	14. 6	15. 9	26	17	80
White	173		14. 2	19	12	73
Colored	56	(6)	25. 9	7	5	109

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 68 cities.
[4] Data for 64 cities.
[5] Deaths for week ended Friday, Apr. 1, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 2, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Apr. 2, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 2, 1927
	Total deaths	Death rate		Week ended Apr. 2, 1927	Corresponding week, 1926	
Birmingham	60	14.6	16.1	8	5	...
White	22	...	9.4	5	3	...
Colored	38	(6)	26.4	3	2	...
Boston	236	15.5	21.5	31	36	57
Bridgeport	31	...	...	0	5	0
Buffalo	140	13.3	24.6	12	34	50
Cambridge	27	11.4	22.7	2	9	26
Camden	34	13.3	17.5	5	8	86
Canton	22	10.2	15.6	3	5	71
Chicago	779	13.1	15.7	82	108	71
Cincinnati	141	17.8	23.9	16	21	100
Cleveland	208	11.0	19.4	25	47	66
Columbus	67	12.0	16.5	6	11	56
Dallas	47	11.7	13.9	8	8	...
White	37	...	12.1	7	6	...
Colored	10	(6)	25.1	1	2	...
Dayton	56	16.2	14.4	5	10	82
Denver	75	13.5	15.7	7	13	...
Des Moines	32	11.2	9.6	4	2	67
Detroit	304	11.9	18.4	44	78	70
Duluth	15	6.8	8.8	0	3	0
El Paso	35	16.0	15.8	6	5	...
Erie	27	...	...	3	9	59
Fall River [5]	23	9.0	14.7	2	11	35
Flint	41	15.0	10.4	7	7	114
Fort Worth	36	11.4	14.4	1	10	...
White	29	...	11.9	1	8	...
Colored	7	(6)	32.9	0	2	...
Grand Rapids	33	10.8	15.4	4	4	59
Houston	77	...	...	3	5	...
White	50	...	...	3	1	...
Colored	27	(6)	...	0	4	...
Indianapolis	89	12.4	16.5	9	11	71
White	69	...	15.0	7	8	63
Colored	20	(6)	27.3	2	3	122
Jersey City	75	12.1	20.8	4	17	30
Kansas City, Kans.	25	11.1	16.9	1	6	19
White	18	...	11.9	1	2	22
Colored	7	(6)	40.7	0	4	0
Kansas City, Mo.	121	16.5	19.3	6	17	...
Knoxville	36	18.4	...	1	...	...
White	29	...	...	1	...	...
Colored	7	(6)	...	0	...	...
Los Angeles	243	...	...	19	20	51
Louisville	68	11.1	15.9	9	16	77
White	55	...	14.0	8	11	78
Colored	13	(6)	28.6	1	5	70
Lowell	29	13.7	21.7	0	10	0
Lynn	24	11.9	14.5	7	1	185
Memphis	76	22.1	22.1	2	5	...
White	37	...	15.6	0	2	...
Colored	39	(6)	33.9	2	3	...
Milwaukee	128	12.7	14.0	19	21	89
Minneapolis	103	12.2	12.6	8	12	45
Nashville [6]	48	18.1	20.6	2	8	...
White	33	...	17.0	2	4	...
Colored	15	(6)	29.4	0	4	...
New Bedford	32	14.0	25.7	3	11	52
New Haven	54	15.2	23.5	7	5	98
New Orleans	153	18.8	20.8	15	13	...
White	83	...	16.3	6	6	...
Colored	70	(6)	33.5	9	7	...

[5] Deaths for week ended Friday, Apr. 1, 1927.

[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population; Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C. 25.

Deaths from all causes in certain large cities of the United States during the week ended April 2, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Apr. 2, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 2, 1927
	Total deaths	Death rate		Week ended Apr. 2, 1927	Corresponding week, 1926	
New York	1,535	13.4	17.8	164	247	68
Bronx Borough	192	10.8	14.7	19	28	61
Brooklyn Borough	526	12.1	16.7	62	100	64
Manhattan Borough	630	18.1	23.1	62	93	73
Queens Borough	137	8.8	12.1	19	22	81
Richmond Borough	50	17.7	17.1	2	4	37
Newark, N. J	134	15.0	15.4	11	18	54
Norfolk	25	7.3	13.2	6	4	121
White	13		10.3	1	1	33
Colored	12	(6)	18.2	5	3	265
Oakland	66	12.9	10.4	4	4	47
Oklahoma City	32			4	4	
Omaha	54	12.9	18.1	5	5	56
Paterson	22	8.0	10.2	1	4	18
Philadelphia	564	14.4	14.8	65	64	87
Pittsburgh	200	16.2	25.1	34	45	119
Portland, Oreg	76			3	3	32
Providence	74	13.7	29.6	7	21	59
Richmond	51	13.9	14.6	3	8	40
White	31		12.1	3	1	61
Colored	20	(6)	20.9	0	7	0
Rochester	87	14.0	16.2	7	6	59
St. Louis	225	14.0	20.8	20	30	
St. Paul	74	15.4	16.2	5	4	45
Salt Lake City [5]	27	10.4	9.4	4	6	61
San Antonio	55	13.6	15.3	12	6	
San Diego	42	19.0	17.5	3	2	64
San Francisco	154	13.9	15.3	9	11	56
Schenectady	23	12.9	20.2	2	2	60
Seattle	66			3	3	31
Somerville	24	12.3	16.2	4	0	144
Spokane	24	11.5	18.7	4	3	100
Springfield, Mass	38	13.5	15.5	6	3	92
Syracuse	45	11.9	13.0	6	7	77
Tacoma	20	9.7	7.4	1	0	24
Toledo	85	14.6	14.1	7	9	67
Trenton	38	14.5	20.6	4	3	70
Utica	37	18.7	29.4	3	9	68
Washington, D. C	151	14.6	12.3	7	11	40
White	94		9.9	4	7	34
Colored	57	(6)	19.5	3	4	55
Waterbury	13			1	4	24
Wilmington, Del	33	13.7	15.1	2	7	50
Worcester	45	12.0	27.8	4	9	48
Yonkers	24	10.5	14.8	4	4	91
Youngstown	26	8.0	13.9	2	7	28

[5] Deaths for week ended Friday, Apr. 1, 1927.

[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washingtion, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended April 9, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	29
Dengue	1
Diphtheria	20
Influenza	215
Malaria	13
Measles	278
Mumps	36
Pellagra	16
Pneumonia	81
Poliomyelitis	1
Scarlet fever	7
Smallpox	38
Tuberculosis	34
Typhoid fever	24
Whooping cough	25

ARIZONA

	Cases
Chicken pox	6
Influenza	1
Measles	47
Poliomyelitis	1
Scarlet fever	8
Tuberculosis	43

ARKANSAS

	Cases
Chicken pox	50
Diphtheria	6
Influenza	86
Malaria	49
Measles	183
Mumps	26
Pellagra	11
Scarlet fever	9
Smallpox	3
Trachoma	2

ARKANSAS—continued

	Cases
Tuberculosis	8
Typhoid fever	2
Whooping cough	80

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Contra Costa County	1
Fort Bragg	1
Kern County	1
Sacramento County	4
San Francisco	1
Chicken pox	575
Diphtheria	107
Influenza	61
Lethargic encephalitis	1
Measles	3,168
Mumps	297
Poliomyelitis—San Francisco	1
Scarlet fever	216
Smallpox	41
Tuberculosis	216
Typhoid fever	4
Whooping cough	190

COLORADO

	Cases
Cerebrospinal meningitis	9
Chicken pox	26
Diphtheria	11
German measles	10
Impetigo contagiosa	1
Measles	320
Pneumonia	3
Scarlet fever	146
Smallpox	1
Tuberculosis	12
Typhoid fever	2
Whooping cough	15

CONNECTICUT

	Cases
Cerebrospinal meningitis	2
Chicken pox	80
Diphtheria	35
German measles	17
Influenza	7
Lethargic encephalitis	1
Measles	95
Mumps	30
Pneumonia (broncho)	32
Pneumonia (lobar)	45
Scarlet fever	101
Septic sore throat	1
Tuberculosis (all forms)	36
Whooping cough	36

DELAWARE

	Cases
Chicken pox	7
Diphtheria	3
Influenza	2
Measles	14
Mumps	3
Ophthalmia neonatorum	1
Pneumonia	4
Scarlet fever	13
Tuberculosis	5

FLORIDA

	Cases
Chicken pox	57
Diphtheria	10
Influenza	1
Malaria	2
Measles	182
Mumps	6
Pellagra	1
Pneumonia	2
Scarlet fever	9
Smallpox	65
Typhoid fever	4
Whooping cough	17

GEORGIA

	Cases
Cerebrospinal meningitis	1
Chicken pox	32
Diphtheria	12
Dysentery	4
Hookworm disease	1
Influenza	304
Malaria	16
Measles	126
Mumps	28
Pellagra	3
Pneumonia	57
Scarlet fever	17
Septic sore throat	8
Tetanus	1
Tuberculosis	19
Typhoid fever	4
Whooping cough	30

IDAHO

	Cases
Cerebrospinal meningitis:	
Kooskia	1
Sandpoint	1
Chicken pox	2
Diphtheria	1
Measles	55
Mumps	2

IDAHO—continued

	Cases
Scarlet fever	19
Smallpox	7
Whooping cough	9

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	8
La Salle County	1
White County	1
Chicken pox	312
Diphtheria	125
Influenza	68
Lethargic encephalitis	2
Measles	1,990
Mumps	508
Pneumonia	304
Scarlet fever	281
Smallpox	33
Tuberculosis	289
Typhoid fever	14
Whooping cough	213

INDIANA

	Cases
Chicken pox	104
Diphtheria	21
Influenza	83
Measles	261
Mumps	3
Pneumonia	11
Scarlet fever	179
Smallpox	119
Tuberculosis	31
Typhoid fever	1
Whooping cough	41

IOWA

	Cases
Chicken pox	46
Diphtheria	21
Measles	698
Mumps	44
Pneumonia	1
Scarlet fever	71
Smallpox	17
Trachoma	1
Tuberculosis	8
Typhoid fever	9
Vincent's angina	1
Whooping cough	17

KANSAS

	Cases
Cerebrospinal meningitis—Colby	1
Chicken pox	112
Diphtheria	15
German measles	21
Influenza	5
Measles	1,008
Mumps	60
Pneumonia	28
Poliomyelitis—Elmdale	1
Scarlet fever	144
Smallpox	48
Tuberculosis	50
Typhoid fever	1
Whooping cough	33

LOUISIANA

	Cases
Anthrax	1
Diphtheria	65
Influenza	16
Malaria	9
Measles	214
Pneumonia	36
Scarlet fever	13
Smallpox	4
Tuberculosis	30
Typhoid fever	18
Whooping cough	29

MAINE

	Cases
Cerebrospinal meningitis	1
Chicken pox	18
Diphtheria	5
German measles	37
Influenza	3
Measles	206
Mumps	18
Pneumonia	9
Scarlet fever	35
Tetanus	1
Tuberculosis	12
Typhoid fever	4
Vincent's angina	1
Whooping cough	19

MARYLAND [1]

	Cases
Cerebrospinal meningitis	1
Chicken pox	112
Diphtheria	45
Dysentery	2
German measles	3
Influenza	117
Measles	37
Mumps	28
Pneumonia (broncho)	50
Pneumonia (lobar)	34
Scarlet fever	61
Septic sore throat	6
Tetanus	2
Tuberculosis	42
Typhoid fever	4
Vincent's angina	1
Whooping cough	88

MASSACHUSETTS

	Cases
Actinomycosis	1
Anthrax	2
Cerebrospinal meningitis	5
Chicken pox	209
Conjunctivitis (suppurative)	4
Diphtheria	100
German measles	23
Influenza	18
Measles	251
Mumps	348
Ophthalmia neonatorum	38
Pneumonia (lobar)	103
Poliomyelitis	1
Scarlet fever	464
Septic sore throat	9
Trachoma	1
Tuberculosis (pulmonary)	106
Tuberculosis (other forms)	28
Typhoid fever	8
Whooping cough	175

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	104
Measles	228
Pneumonia	98
Scarlet fever	243
Smallpox	20
Tuberculosis	191
Typhoid fever	5
Whooping cough	80

MINNESOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	142
Diphtheria	43
Influenza	1
Lethargic encephalitis	1
Measles	248
Scarlet fever	217
Smallpox	1
Trachoma	1
Tuberculosis	35
Typhoid fever	1
Whooping cough	13

MISSISSIPPI

	Cases
Diphtheria	8
Scarlet fever	2
Smallpox	1
Typhoid fever	9

MISSOURI

(Exclusive of Kansas City)

	Cases
Chicken pox	40
Diphtheria	41
Influenza	1
Measles	181
Mumps	62
Pneumonia	3
Scarlet fever	92
Smallpox	6
Tetanus	1
Trachoma	4
Tuberculosis	30
Typhoid fever	4
Whooping cough	35

MONTANA

	Cases
Cerebrospinal meningitis	8
Chicken pox	22
Diphtheria	1
German measles	1
Measles	35
Mumps	2
Scarlet fever	56
Smallpox	16
Tuberculosis	1
Typhoid fever	4
Whooping cough	4

NEBRASKA

	Cases
Chicken pox	81
Diphtheria	3
German measles	88
Measles	293
Mumps	43
Scarlet fever	80
Smallpox	20
Tuberculosis	12
Typhoid fever	3
Whooping cough	29

NEW JERSEY

	Cases
Chicken pox	334
Diphtheria	120
Influenza	28
Measles	57
Pneumonia	154
Poliomyelitis	1
Scarlet fever	362
Typhoid fever	9
Whooping cough	170

NEW MEXICO

	Cases
Chicken pox	54
Diphtheria	3
German measles	59
Malaria	1
Measles	117
Mumps	39
Pellagra	2
Pneumonia	3
Scarlet fever	12
Smallpox	3
Tuberculosis	17
Typhoid fever	1
Whooping cough	8

NEW YORK

(Exclusive of New York City)

	Cases
Chicken pox	331
Diphtheria	79
Dysentery	1
German measles	284
Measles	886
Mumps	522
Ophthalmia neonatorum	1
Paratyphoid fever	1
Pneumonia	312
Poliomyelitis	1
Scarlet fever	343
Smallpox	6
Tetanus	2
Typhoid fever	8
Vincent's angina	21
Whooping cough	177

NORTH CAROLINA

	Cases
Chicken pox	126
Diphtheria	16
German measles	19
Measles	885
Ophthalmia neonatorum	1
Scarlet fever	27
Septic sore throat	2

NORTH CAROLINA—continued

	Cases
Smallpox	21
Typhoid fever	2
Whooping cough	710

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Osage County	1
Chicken pox	25
Diphtheria	21
Influenza	117
Malaria	12
Measles	314
Mumps	18
Pneumonia	100
Scarlet fever	58
Smallpox	30
Typhoid fever	8
Whooping cough	36

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	27
Diphtheria	14
Influenza	54
Measles	242
Mumps	18
Pneumonia	[2] 9
Poliomyelitis	1
Scarlet fever	40
Septic sore throat	2
Smallpox	25
Tuberculosis	[2] 5
Typhoid fever	2
Whooping cough	12

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Ambridge	1
Chicken pox	602
Diphtheria	176
German measles	107
Impetigo contagiosa	5
Lethargic encephalitis	1
Measles	599
Mumps	567
Ophthalmia neonatorum	4
Pneumonia	172
Poliomyelitis—Venango County	1
Scabies	7
Scarlet fever	606
Tetanus—Philadelphia	1
Trachoma	1
Trichinosis	2
Tuberculosis	155
Typhoid fever	5
Whooping cough	196

RHODE ISLAND

	Cases
Chicken pox	12
Diphtheria	8
German measles	4
Measles	3
Mumps	5
Pneumonia	3

[2] Deaths.

RHODE ISLAND—continued

	Cases
Scarlet fever	17
Tuberculosis	10
Typhoid fever	1
Whooping cough	14

SOUTH CAROLINA

Chicken pox	111
Dengue	5
Diphtheria	11
Hookworm disease	20
Influenza	1,649
Malaria	94
Measles	91
Paratyphoid fever	2
Pellagra	70
Poliomyelitis	3
Scarlet fever	3
Smallpox	22
Tuberculosis	55
Typhoid fever	9
Whooping cough	173

SOUTH DAKOTA

Chicken pox	20
Diphtheria	5
Influenza	2
Measles	274
Mumps	5
Pneumonia	10
Poliomyelitis	1
Scarlet fever	67
Smallpox	16
Whooping cough	15

TENNESSEE

Cerebrospinal meningitis—Hancock County	1
Chicken pox	34
Diphtheria	6
Influenza	114
Malaria	6
Measles	186
Mumps	20
Pellagra	7
Pneumonia	46
Puerperal septicemia	1
Scarlet fever	36
Smallpox	9
Trachoma	1
Tuberculosis	22
Typhoid fever	3
Whooping cough	68

TEXAS

Chicken pox	85
Diphtheria	37
Influenza	49
Measles	245
Mumps	54
Pellagra	10
Pneumonia	9
Scarlet fever	38
Smallpox	92
Trachoma	2
Tuberculosis	22
Typhoid fever	4
Typhus fever	1
Whooping cough	63

UTAH

	Cases
Cerebrospinal meningitis—Salt Lake City	1
Chicken pox	30
Diphtheria	11
German measles	10
Influenza	2
Measles	58
Mumps	3
Pneumonia	2
Scarlet fever	8
Smallpox	4
Typhoid fever	1
Whooping cough	31

VERMONT

Chicken pox	23
Measles	109
Mumps	72
Scarlet fever	11
Whooping cough	15

VIRGINIA

Smallpox	1

WASHINGTON

Cerebrospinal meningitis	6
Chicken pox	102
Diphtheria	19
German measles	341
Influenza	6
Lethargic encephalitis	1
Measles	300
Mumps	109
Pneumonia	1
Scarlet fever	91
Smallpox	44
Tuberculosis	64
Typhoid fever	3
Whooping cough	36

WEST VIRGINIA

Chicken pox	37
Diphtheria	21
Influenza	61
Measles	170
Scarlet fever	42
Smallpox	36
Tuberculosis	14
Typhoid fever	13
Whooping cough	78

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	5
Chicken pox	70
Diphtheria	25
German measles	4
Measles	84
Mumps	90
Ophthalmia neonatorum	2
Pneumonia	20
Scarlet fever	41
Tuberculosis	15
Typhoid fever	1
Whooping cough	42
Scattering:	
Chicken pox	145
Diphtheria	9

WISCONSIN—continued

Scattering—Continued.	Cases
German measles	44
Influenza	44
Measles	607
Mumps	207
Pneumonia	16
Scarlet fever	150
Smallpox	1
Tuberculosis	15
Whooping cough	70

WYOMING

	Cases
Cerebrospinal meningitis—Laramie County	1
Chicken pox	14
Diphtheria	2
German measles	8
Measles	82
Mumps	32
Rocky Mountain spotted fever	1
Scarlet fever	16
Tuberculosis	2
Vincent's angina	1

Reports for week ended April 2, 1927

DISTRICT OF COLUMBIA

	Cases
Chicken pox	70
Diphtheria	13
Influenza	1
Measles	4
Pneumonia	27
Scarlet fever	31
Tuberculosis	28
Typhoid fever	2
Whooping cough	11

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	3
Chicken pox	24

NORTH DAKOTA—continued

	Cases
Diphtheria	3
German measles	1
Measles	253
Mumps	18
Ophthalmia neonatorum	1
Pneumonia	9
Scarlet fever	73
Smallpox	9
Trachoma	2
Tuberculosis	3
Typhoid fever	2
Whooping cough	3

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February, 1927										
California	26	601	345		11,514		9	1,156	110	24
Hawaii Territory	0	48	9		222		9	7	0	12
Virginia	5	146	5,213	52	2,414	12	6	224	162	22
March, 1927										
Connecticut	1	123	77	1	600		1	538	0	2
Georgia	3	61	1,381	30	570	13	0	66	348	16
Nebraska	2	77	160		2,255		1	773	294	18
Tennessee	6	50	822	17	739	12	1	196	95	62

February, 1927

	Cases
Chicken pox:	
California	3,092
Hawaii Territory	25
Virginia	1,026
Conjunctivitis (follicular):	
Hawaii Territory	8
Dysentery:	
Virginia	36
Dysentery (amoebic):	
California	5
Dysentery (bacillary):	
California	10
German measles:	
California	178
Hookworm disease:	
California	1
Virginia	7

February, 1927—Continued

	Cases
Jaundice (epidemic):	
California	11
Leprosy:	
Hawaii Territory	4
Lethargic encephalitis:	
California	6
Mumps:	
California	991
Ophthalmia neonatorum:	
California	2
Paratyphoid fever:	
California	2
Rabies in animals:	
California	51
Tetanus:	
California	3
Hawaii Territory	2

February, 1927—Continued

	Cases
Trachoma:	
California	67
Hawaii Territory	104
Trichinosis:	
California	3
Whooping cough:	
California	459
Hawaii Territory	215
Virginia	1,844

March, 1927

	Cases
Chicken pox:	
Connecticut	501
Georgia	239
Nebraska	685
Tennessee	270
Dysentery:	
Georgia	10
Conjunctivitis (infectious):	
Georgia	1
German measles:	
Connecticut	45
Nebraska	529
Hookworm disease:	
Georgia	5
Lethargic encephalitis:	
Nebraska	1
Tennessee	1

March, 1927—Continued

	Cases
Mumps:	
Connecticut	198
Georgia	114
Nebraska	616
Tennessee	47
Paratyphoid fever:	
Connecticut	1
Rabies in animals.	
Connecticut	2
Rabies in man.	
Georgia	1
Tennessee	1
Septic sore throat	
Connecticut	15
Georgia	25
Nebraska	44
Tetanus:	
Georgia	1
Trachoma:	
Georgia	1
Trichinosis.	
Connecticut	1
Whooping cough:	
Connecticut	220
Georgia	246
Nebraska	250
Tennessee	392

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 30,700,000. The estimated population of the 94 cities reporting deaths is more than 30,100,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 26, 1927, and March 27, 1926

	1926	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,318	1,715	
99 cities	757	1,055	911
Measles:			
41 States	21,327	15,587	
99 cities	10,644	5,426	
Poliomyelitis:			
42 States	12	10	
Scarlet fever:			
41 States	4,528	5,947	
99 cities	1,883	2,517	1,276
Smallpox:			
42 States	1,025	1,170	
99 cities	216	178	146
Typhoid fever:			
42 States	179	248	
99 cities	48	50	37
Deaths reported			
Influenza and pneumonia:			
94 cities	2,664	1,112	
Smallpox:			
94 cities	6	0	
Los Angeles	6	0	

City reports for week ended March 26, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	9	1	0	0	0	1	0	3
New Hampshire:									
Concord	22,546	0	0	0	0	0	8	0	2
Manchester	83,097	0	2	0	0	0	0	0	2
Vermont:									
Barre	10,008	0	0	0	0	0	1	3	0
Burlington	24,089	1	0	1	0	0	1	0	1
Massachusetts:									
Boston	779,620	102	57	32	4	0	59	143	19
Fall River	128,993	7	3	1	0	0	0	1	4
Springfield	142,065	1	3	7	1	1	1	2	2
Worcester	190,757	22	4	2	1	0	6	10	13
Rhode Island:									
Pawtucket	69,760	4	1	1	0	0	0	0	1
Providence	267,918	0	8	6	1	0	0	0	5
Connecticut:									
Bridgeport	(1)	1	6	5	2	1	7	7	6
Hartford	160,197	2	7	0	3	1	1	5	7
New Haven	178,927	14	3	2	1	0	1	2	5
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	28	11	8	--------	0	4	16	21
New York	5,873,356	383	209	317	94	23	46	550	230
Rochester	316,786	8	10	14	--------	2	20	4	12
Syracuse	182,003	23	7	4	--------	0	28	13	8
New Jersey:									
Camden	128,642	7	4	20	1	1	1	2	6
Newark	452,513	71	16	11	7	0	5	57	12
Trenton	132,020	1	4	1	0	1	0	2	2
Pennsylvania:									
Philadelphia	1,979,364	117	74	60	--------	21	36	125	78
Pittsburgh	631,563	72	19	23	--------	4	90	3	33
Reading	112,707	14	3	2	--------	0	2	46	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	16	8	30	0	1	1	21	7
Cleveland	936,485	122	23	58	5	2	3	46	18
Columbus	279,836	13	3	7	0	1	7	0	7
Toledo	287,380	51	4	6	5	3	28	14	7
Indiana:									
Fort Wayne	97,846	8	2	1	0	0	31	0	3
Indianapolis	358,819	88	7	8	0	0	14	29	16
South Bend	80,091	3	1	2	0	0	15	0	1
Terre Haute	71,071	2	0	0	0	0	26	0	0
Illinois:									
Chicago	2,995,239	103	83	73	27	10	1,340	185	85
Peoria	81,564	5	1	0	0	0	10	3	3
Springfield	63,923	6	1	1	1	0	49	0	0

[1] No estimate made.

City reports for week ended March 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit	1,245,824	120	54	65	4	5	25	173	47
Flint	130,316	29	4	0	0	0	6	2	7
Grand Rapids	153,698	10	3	1	0	1	1	2	1
Wisconsin:									
Kenosha	50,891	11	1	0	0	0	80	52	0
Madison	46,385	10	1	1	0	0	8	3	0
Milwaukee	509,192	98	15	19	4	4	78	74	14
Racine	67,707	7	1	2	0	0	23	35	3
Superior	39,671	0	1	0	0	0	8	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	16	0	0	0	0	51	1	1
Minneapolis	425,435	104	15	12	0	3	21	0	5
St. Paul	246,001	50	15	3	0	1	21	5	11
Iowa:									
Davenport	52,469	0	1	2	0	--------	4	1	--------
Des Moines	141,441	1	2	1	0	--------	30	1	--------
Sioux City	76,411	18	1	0	0	--------	78	2	--------
Waterloo	36,771	6	0	--------	0	--------	165	0	--------
Missouri:									
Kansas City	367,481	21	7	5	0	2	60	17	12
St. Joseph	78,342	3	1	0	0	0	12	0	7
St. Louis	821,543	40	41	37	0	0	37	53	--------
North Dakota:									
Fargo	26,403	1	1	1	0	0	122	5	0
Grand Forks	14,811	0	0	0	0	--------	0	1	--------
South Dakota:									
Aberdeen	15,036	3	0	0	0	--------	123	6	--------
Sioux Falls	30,127	2	0	0	0	--------	5	0	--------
Nebraska:									
Lincoln	60,941	7	1	0	0	1	51	4	1
Omaha	211,768	6	3	2	1	1	140	45	6
Kansas:									
Topeka	55,411	23	1	1	0	0	52	0	1
Wichita	88,367	32	1	0	0	0	6	3	6
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	2	2	0	0	0	2	1	4
Maryland:									
Baltimore	796,296	99	27	36	52	10	2	14	48
Cumberland	33,741	0	1	0	0	1	0	0	3
Frederick	12,035	0	1	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	73	10	25	5	2	9	0	11
Virginia:									
Lynchburg	30,395	16	1	2	0	2	36	1	2
Norfolk	(1)	--------	1	--------	--------	--------	--------	--------	--------
Richmond	186,403	8	2	0	0	0	135	0	6
Roanoke	58,208	4	1	1	0	3	2	0	7
West Virginia:									
Charleston	49,019	12	1	1	2	0	0	1	2
Wheeling	56,208	3	1	0	0	0	21	0	2
North Carolina:									
Raleigh	30,371	15	0	0	0	0	31	0	0
Wilmington	37,061	0	0	1	0	0	0	27	2
Winston-Salem	69,031	12	0	2	0	6	1	18	2
South Carolina:									
Charleston	73,125	7	0	0	56	1	20	0	3
Columbia	41,225	--------	0	--------	--------	--------	--------	--------	--------
Greenville	27,311	1	0	0	0	0	2	0	1
Georgia:									
Atlanta	(1)	5	2	4	131	9	82	4	11
Brunswick	16,809	0	0	0	0	0	0	4	0
Savannah	93,134	1	0	4	48	0	0	1	6
Florida:									
Miami	69,754	38	4	2	1	0	1	14	1
St. Petersburg	26,847	--------	1	--------	--------	0	--------	--------	1
Tampa	94,743	12	1	1	0	0	79	0	2

[1] No estimate made.

City reports for week ended March 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	1	0	0	0	0	2
Louisville	305,935	15	5	3	3	0	3	1	11
Tennessee:									
Memphis	174,533	18	5	0	0	8	4	1	13
Nashville	136,220	4	0	0	0	3	0	2	5
Alabama:									
Birmingham	205,670	9	2	3	32	6	46	3	6
Mobile	65,955	2	0	1	0	1	12	0	0
Montgomery	46,481	2	0	0	0	0	21	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	1	0	0	--------	159	13	5
Little Rock	74,216	0	1	0	0	0	1	0	2
Louisiana:									
New Orleans	414,493	1	8	25	9	3	74	0	8
Shreveport	57,857	3	0	1	0	0	5	9	0
Oklahoma:									
Oklahoma City	(1)	3	1	2	18	1	0	0	4
Texas:									
Dallas	194,450	22	4	6	1	1	183	2	3
Galveston	48,375	0	0	0	0	0	0	0	1
Houston	164,954	4	2	7	0	0	0	0	8
San Antonio	198,069	3	1	3	0	2	2	0	5
MOUNTAIN									
Montana:									
Billings	17,971	2	1	0	0	0	4	0	2
Great Falls	29,883	0	1	0	0	0	9	1	2
Helena	12,037	3	0	0	0	0	1	0	0
Missoula	12,668	4	1	0	1	1	0	24	0
Idaho:									
Boise	23,042	0	0	2	0	0	2	0	0
Colorado:									
Denver	280,911	13	9	3	--------	2	491	2	8
Pueblo	43,787	13	1	2	0	0	20	0	3
New Mexico:									
Albuquerque	21,000	1	0	0	0	0	28	10	0
Utah:									
Salt Lake City	130,948	22	3	2	5	0	38	0	4
Nevada:									
Reno	12,665	1	0	0	0	0	1	1	0
PACIFIC									
Washington:									
Seattle	(1)	47	5	12	0	--------	44	108	--------
Spokane	108,897	5	2	1	0	--------	18	0	--------
Tacoma	104,455	28	1	0	0	0	53	0	4
Oregon:									
Portland	282,383	8	6	10	1	3	107	2	4
California:									
Los Angeles	(1)	56	43	48	38	3	942	26	22
Sacramento	72,260	14	1	1	0	1	17	9	1
San Francisco	557,530	41	21	12	13	4	137	114	5

1 No estimate made.

City reports for week ended March 26, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	4	2	0	0	0	1	0	0	0	6	16
New Hampshire:											
Concord	1	2	0	0	0	2	0	0	0	0	9
Manchester	3	2	0	0	0	3	0	0	0	0	18
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	6
Burlington	0	2	0	0	0	0	0	1	0	2	12
Massachusetts:											
Boston	74	133	0	0	0	15	1	1	0	23	221
Fall River	3	7	0	0	0	2	0	0	0	2	38
Springfield	6	7	0	0	0	0	0	0	0	14	30
Worcester	10	12	0	0	0	2	0	1	0	8	63
Rhode Island:											
Pawtucket	2	0	0	0	0	0	0	0	0	2	12
Providence	8	12	0	0	0	3	0	0	0	2	65
Connecticut:											
Bridgeport	12	10	0	0	0	0	0	0	0	0	42
Hartford	5	16	0	0	0	0	0	0	0	6	40
New Haven	10	5	0	0	0	1	0	0	0	0	41
MIDDLE ATLANTIC											
New York:											
Buffalo	21	26	0	0	0	4	1	1	0	10	123
New York	266	893	1	0	0	[1] 125	7	10	2	96	1,480
Rochester	16	18	0	0	0	2	1	2	0	5	73
Syracuse	14	5	0	0	0	1	0	0	0	9	51
New Jersey:											
Camden	6	6	0	0	0	8	0	0	0	0	33
Newark	26	55	0	0	0	13	0	0	0	39	120
Trenton	4	2	0	0	0	2	0	0	0	4	34
Pennsylvania:											
Philadelphia	78	144	0	0	0	42	3	0	0	35	557
Pittsburgh	30	27	1	0	0	10	0	1	0	8	165
Reading	4	2	0	0	0	3	0	0	0	2	17
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	38	2	1	0	11	0	0	0	3	133
Cleveland	38	45	1	0	0	14	1	2	0	27	190
Columbus	12	17	2	2	0	4	0	0	0	10	93
Toledo	14	18	5	0	0	6	0	0	0	20	75
Indiana:											
Fort Wayne	5	7	2	5	0	3	0	0	0	0	30
Indianapolis	9	29	12	28	0	2	0	1	0	26	81
South Bend	3	6	1	2	0	1	0	0	0	0	15
Terre Haute	3	1	1	0	0	2	0	0	0	0	21
Illinois:											
Chicago	121	131	3	0	0	62	2	2	0	103	747
Peoria	4	1	0	0	0	1	0	0	0	0	--------
Springfield	1	4	0	0	0	0	0	0	0	0	23
Michigan:											
Detroit	90	119	1	0	0	19	1	1	0	62	309
Flint	6	43	1	5	0	1	0	0	0	1	26
Grand Rapids	8	11	1	0	0	0	0	0	0	0	29
Wisconsin:											
Kenosha	3	8	1	0	0	0	0	0	0	2	8
Madison	3	12	0	0	0	0	0	0	0	20	8
Milwaukee	28	52	3	1	0	8	0	0	0	49	119
Racine	4	6	1	0	0	0	0	0	0	13	17
Superior	3	4	4	0	0	0	0	0	0	0	9

[1] Pulmonary tuberculosis only.

City reports for week ended March 26, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	14	2	0	0	2	0	1	0	0	23
Minneapolis	43	55	7	0	0	4	1	1	0	7	93
St. Paul	33	30	6	0	0	7	0	0	0	12	75
Iowa:											
Davenport	2	1	2	0	-------	-------	0	0	-------	2	-------
Des Moines	5	14	2	1	-------	-------	0	0	-------	0	-------
Sioux City	2	9	2	4	-------	-------	0	0	-------	6	-------
Waterloo	2	0	0	0	-------	-------	0	0	-------	0	-------
Missouri:											
Kansas City	10	25	2	15	0	7	0	0	0	15	90
St. Joseph	2	14	0	6	0	0	0	0	0	2	-------
St. Louis	33	24	5	1	0	15	1	0	0	23	219
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	0	10
Grand Forks	0	10	1	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	4	8	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	2	2	0	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Lincoln	3	3	0	0	0	1	0	0	0	4	19
Omaha	3	19	9	1	0	2	0	0	0	1	58
Kansas:											
Topeka	3	6	1	8	0	0	0	0	0	7	8
Wichita	3	6	3	0	0	0	0	0	0	3	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	19	0	0	0	0	0	0	0	3	23
Maryland:											
Baltimore	38	25	1	0	0	23	2	3	0	55	246
Cumberland	0	2	0	0	0	0	0	0	0	0	12
Frederick	0	2	0	0	0	0	0	0	0	0	5
District of Columbia:											
Washington	26	26	2	0	0	10	1	1	0	17	132
Virginia:											
Lynchburg	0	1	1	0	0	1	0	0	0	0	16
Norfolk	1	-------	1	-------	-------	-------	0	-------	-------	-------	-------
Richmond	3	4	0	0	0	3	0	0	0	8	57
Roanoke	0	5	1	3	0	1	0	1	0	3	22
West Virginia:											
Charleston	0	0	0	1	0	1	0	1	0	3	25
Wheeling	2	2	0	0	0	0	0	0	0	0	19
North Carolina:											
Raleigh	0	2	0	0	0	3	0	0	0	55	12
Wilmington	1	1	0	0	0	0	0	0	0	21	11
Winston-Salem	0	0	5	0	0	0	0	0	0	65	28
South Carolina:											
Charleston	0	0	0	0	0	3	0	0	0	0	33
Columbia	0	-------	1	-------	-------	-------	0	-------	-------	-------	-------
Greenville	0	0	1	1	0	3	0	0	0	1	11
Georgia:											
Atlanta	4	3	3	14	0	0	1	1	1	21	79
Brunswick	0	0	0	0	0	1	1	0	0	0	3
Savannah	0	1	1	1	0	6	0	0	0	2	38
Florida:											
Miami	3	1	-------	0	0	2	1	1	0	17	37
St. Petersburg	0	-------	0	-------	0	3	0	-------	0	-------	21
Tampa	0	3	0	0	0	3	1	0	0	5	21
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	3	0	0	0	3	0	0	0	0	25
Louisville	5	7	0	4	0	3	1	0	1	74	82
Tennessee:											
Memphis	4	15	4	6	0	3	0	2	0	28	78
Nashville	2	1	2	0	0	8	1	1	0	4	54
Alabama:											
Birmingham	2	4	9	10	0	6	1	5	1	3	70
Mobile	0	2	1	0	0	2	0	0	0	0	28
Montgomery	0	0	0	1	0	0	0	0	0	13	-------

City reports for week ended March 26, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	...	...	0	0	...	4	6
Little Rock	1	2	0	1	0	2	0	0	0	0	...
Louisiana:											
New Orleans	6	0	3	0	0	20	2	4	0	11	106
Shreveport	0	3	2	1	0	5	0	1	0	0	30
Oklahoma:											
Oklahoma City	2	2	4	7	0	6	0	0	0	6	30
Texas:											
Dallas	2	1	5	8	0	2	0	1	0	4	42
Galveston	0	1	1	0	0	0	1	0	0	0	18
Houston	1	5	1	8	0	4	0	1	1	0	60
San Antonio	0	2	0	0	0	9	1	0	0	0	59
MOUNTAIN											
Montana:											
Billings	1	4	1	0	0	0	0	0	0	0	9
Great Falls	1	7	1	0	0	0	0	0	0	0	9
Helena	0	0	0	0	0	0	0	0	0	0	2
Missoula	1	6	1	0	0	1	0	0	0	0	10
Idaho:											
Boise	1	3	1	0	0	0	0	0	0	0	6
Colorado:											
Denver	13	92	2	1	0	9	1	0	0	1	81
Pueblo	1	1	1	0	0	1	0	0	0	0	15
New Mexico:											
Albuquerque	1	0	0	0	0	5	0	0	0	0	12
Utah:											
Salt Lake City	2	12	1	1	0	1	1	0	0	12	32
Nevada:											
Reno	0	1	0	0	0	0	0	0	0	0	10
PACIFIC											
Washington:											
Seattle	10	15	4	1	...	...	1	2	...	27	...
Spokane	5	30	4	10	...	...	0	0	...	17	...
Tacoma	3	12	3	24	0	0	0	0	0	4	28
Oregon:											
Portland	6	3	7	5	0	5	0	0	0	8	80
California:											
Los Angeles	25	48	5	0	0	19	1	2	0	23	259
Sacramento	2	2	0	2	0	3	0	0	0	0	27
San Francisco	14	31	5	1	0	12	1	0	0	33	158

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	1	1	0	0	0	0	0	0
Rhode Island:									
Providence	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	1	0	0	0	0	0	0	0	0
New York [1]	6	4	8	4	0	0	1	0	0
New Jersey:									
Newark	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	1	1	0	0	0	0	0	0

[1] Rabies (human): 1 case and 1 death at New York, N. Y.

City reports for week ended March 26, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	6	1	0	0	0	0	0	0	0
Michigan:									
Detroit	1	2	2	1	0	0	0	0	0
Wisconsin:									
Milwaukee	4	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	1	0	0	0	0	0	0	0	0
Minneapolis	3	2	1	1	0	0	0	0	0
St. Paul	2	0	0	0	0	0	0	0	0
Missouri:									
St. Louis	2	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	2	1	0	0	0	0	1
District of Columbia:									
Washington	1	1	0	0	0	0	0	0	0
Virginia:									
Lynchburg	0	0	0	0	0	1	0	0	0
Richmond	1	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	2	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	0	0	0	0
Savannah [2]	0	0	1	1	1	0	0	0	0
Florida:									
Miami	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	1	0	0	0	0	0	0
Tennessee:									
Memphis	1	0	0	0	0	1	0	0	0
Nashville	3	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	1	1	0	0	0
Louisiana:									
New Orleans	0	0	1	1	0	0	0	0	0
Shreveport	0	0	0	0	0	2	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	0	0	0
Galveston	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	2	0	0	0	0	0	0	0	0
Tacoma	0	1	0	0	0	0	0	0	0
California:									
Los Angeles	2	1	0	0	0	0	0	0	0
San Francisco	0	0	0	1	0	0	0	0	0

[2] Typhus fever: 2 cases at Savannah, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended March 26, 1927, compared with those for a like period ended March 27, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, February 20 to March 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 27, 1926	Feb. 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927
101 cities	134	179	[2] 124	182	[3] 114	[3] 184	120	[4] 171	[5] 131	[4] 179
New England	101	149	94	163	78	128	127	137	139	130
Middle Atlantic	119	200	111	224	113	231	126	225	142	227
East North Central	141	198	123	177	[3] 107	[3] 166	98	157	102	170
West North Central	246	109	[2] 241	115	216	133	147	127	149	121
South Atlantic	73	192	108	196	86	156	69	[4] 149	[5] 62	[4] 151
East South Central	52	117	47	82	26	112	26	31	36	41
West South Central	116	197	103	151	103	193	103	164	155	176
Mountain	210	72	73	234	109	198	73	126	255	81
Pacific	214	152	188	134	147	199	281	165	238	194

MEASLES CASE RATES

101 cities	2,066	843	[2] 1,884	858	[3] 1,686	[3] 942	1,783	[4] 906	[5] 1,834	[4] 920
New England	2,184	228	2,441	172	1,964	197	1,722	211	1,344	197
Middle Atlantic	2,044	75	1,843	68	1,716	80	1,858	93	1,839	114
East North Central	3,084	930	2,695	1,078	[3] 2,135	[3] 1,104	1,994	1,160	2,091	1,092
West North Central	901	963	[2] 842	955	1,603	1,245	1,892	1,564	2,323	1,519
South Atlantic	3,269	654	2,675	797	2,248	786	2,772	[4] 942	[5] 2,731	[4] 828
East South Central	1,231	464	1,319	540	1,407	459	2,260	443	2,906	438
West South Central	9	600	17	730	39	1,204	43	1,010	125	1,778
Mountain	82	10,653	210	8,154	337	9,116	328	5,412	310	5,088
Pacific	161	2,872	276	3,037	324	3,259	319	2,930	450	3,170

SCARLET FEVER CASE RATES

101 cities	285	424	[2] 289	419	[3] 303	[3] 446	300	[4] 436	[5] 324	[4] 427
New England	354	541	347	423	333	500	403	516	354	178
Middle Atlantic	187	532	185	533	192	585	202	573	210	581
East North Central	340	365	346	398	[3] 371	[3] 364	340	359	407	351
West North Central	706	447	[2] 807	445	903	472	815	427	897	401
South Atlantic	199	219	162	181	149	194	156	[4] 234	[5] 155	[4] 188
East South Central	171	183	186	219	140	280	145	209	140	163
West South Central	112	117	90	67	112	122	137	63	146	59
Mountain	100	1,196	337	1,079	219	1,115	246	1,340	210	1,133
Pacific	311	314	311	330	249	285	279	254	287	[illegible]61

SMALLPOX CASE RATES

101 cities	41	25	[2] 50	22	[3] 40	[3] 30	36	[4] 31	[5] 37	[4] 30
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	1	0	0
East North Central	18	15	23	21	[3] 19	[3] 34	26	35	10	29
West North Central	79	64	[2] 61	54	67	54	50	50	51	69
South Atlantic	65	45	99	53	48	54	60	[4] 53	[5] 95	[4] 39
East South Central	52	71	67	122	67	82	83	132	57	107
West South Central	133	50	193	50	142	71	137	46	142	75
Mountain	46	0	36	0	18	0	64	90	27	18
Pacific	244	105	300	13	260	94	163	84	209	99

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., and Columbia, S. C., not included.
[5] Norfolk, Va., not included.

Summary of weekly reports from cities, February 20 to March 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Feb 27, 1926	Feb 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927
101 cities	5	8	[2] 10	9	[3] 8	[3] 8	6	[4] 7	[5] 8	[4] 8
New England	5	9	12	2	5	12	0	5	0	5
Middle Atlantic	2	1	4	5	7	8	4	6	10	7
East North Central	1	6	5	6	[3] 4	[3] 1	3	4	4	[4] 4
West North Central	2	8	[2] 0	10	4	4	2	0	2	4
South Atlantic	11	29	6	24	* 7	11	20	[4] 12	[5] 16	[4] 14
East South Central	10	25	10	41	5	31	21	20	16	41
West South Central	30	4	39	8	4	17	9	13	9	29
Mountain	18	18	146	9	146	0	9	9	27	0
Pacific	8	8	16	8	0	10	5	18	13	10

INFLUENZA DEATH RATES

	Feb 27, 1926	Feb 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927
95 cities	46	22	[2] 51	25	[3] 71	[3] 27	76	[5] 31	[5] 97	[5] 27
New England	19	12	12	9	24	12	45	19	68	7
Middle Atlantic	39	22	68	24	105	25	95	32	112	26
East North Central	14	17	14	23	[3] 32	[3] 16	65	18	104	16
West North Central	23	10	[2] 5	17	36	15	32	21	38	15
South Atlantic	96	42	47	48	78	72	51	[5] 82	[5] 83	[5] 67
East South Central	134	41	259	20	197	76	222	87	253	92
West South Central	212	26	124	39	97	47	146	22	115	26
Mountain	100	54	109	54	146	54	46	18	64	27
Pacific	35	17	32	17	21	7	18	14	14	28

PNEUMONIA DEATH RATES

	Feb 27, 1926	Feb 26, 1927	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927
95 cities	259	164	[2] 269	172	[3] 326	[3] 188	372	[5] 183	[5] 372	[5] 166
New England	165	183	186	202	217	188	356	172	429	156
Middle Atlantic	317	177	358	193	461	223	504	226	494	199
East North Central	179	146	206	134	[3] 289	[3] 159	355	142	352	141
West North Central	108	91	[2] 97	104	148	81	146	114	160	102
South Atlantic	454	257	342	234	303	278	352	[5] 263	[5] 333	[5] 220
East South Central	300	117	310	260	388	178	398	183	476	188
West South Central	353	104	362	185	238	159	260	190	163	116
Mountain	410	135	237	126	301	171	201	162	191	171
Pacific	141	131	117	121	92	148	99	93	117	110

[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., and Columbia, S. C., not included.
[5] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2.211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

INFLUENZA ON VESSEL

Steamship "Ceramic"—Cape Town from Liverpool—February 16, 1927.—The steamship *Ceramic*, from Liverpool, arrived February 16, 1927, at Cape Town, Union of South Africa, with history of seven cases of influenza during voyage, of which three cases were stated to be still sick on arrival. The type of the disease was mild. The patients were removed to isolation hospital. The *Ceramic* left Liverpool January 29, 1927.

CANADA

Communicable diseases—Week ended March 26, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended March 26, 1927, as follows:

Disease	Novia Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	10			10				20
Smallpox				8			30	38
Typhoid fever	1	1	399	9	1	1		412

Typhoid fever—Montreal.—During the week ended April 2, 1927, 649 cases of typhoid fever were reported in Montreal, Canada, with 48 deaths. The total number of cases reported from March 4 to noon on April 7 was 2,055. The Montreal health officer states that the epidemic is declining.

ESTONIA

Communicable diseases—January, 1927.—During the month of January, 1927, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Diphtheria	54	Tuberculosis	169
Measles	255	Typhoid fever	39
Scarlet fever	580	Typhus fever	7

Population: 1,107,059.

GUATEMALA

Smallpox mortality—Guatemala Department—February, 1927.—During the month of February, 1927, 28 deaths from smallpox were reported in the Department of Guatemala, Republic of Guatemala. Population, estimated, 220,000.

INDIA

Cholera outbreak—Rangoon—February 1–15, 1927.—Increased prevalence of cholera, with 31 cases, 18 deaths, was reported at Rangoon, India, during the period February 1 to 15, 1927. The spread of infection was attributed to contamination of a well at a rice mill and to direct contact infection. Of the 31 cases reported during the period, 23 occurred at the mill location.

INDO-CHINA (FRENCH)

Cholera—Plague—Smallpox—Typhus fever—August, 1926.—During the month of August, 1926, cholera, plague, smallpox, and typhus fever were reported in French Indo-China as follows:

Cholera.—Cases, 1,242; deaths, 926, native; European, 1 case. The occurrence was reported in six Provinces, the greatest prevalence, viz, 483 cases with 361 deaths, being reported from the Province of Kwang-Chow-Wan.

Plague.—Cases, 10; deaths, 9; in the Provinces of Cambodia and Cochin-China.

Smallpox.—Cases, 23; deaths, 9; occurring in five Provinces, the greatest number of cases being reported in the Provinces of Cambodia and Tonkin, viz, 7 each.

Typhus fever.—Cases, 2, occurring in Tonkin Province.

Other communicable diseases.—Certain other communicable diseases were reported as follows:

Disease	Cases	Deaths	Province
Dengue	75		Laos.
Dysentery	[1] 352		Cochin-China, 169 cases; Laos, 164; Tonkin, 19.
Leprosy	3		Annam, 1 case; Cochin-China, 2 cases.
Typhoid fever	[2] 6	3	Cochin-China; Tonkin.

[1] European, 2 cases. [2] European, 1 case.

LATVIA

Communicable diseases—January, 1927.—During the month of January, 1927, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	4	Scarlet fever	461
Diphtheria	69	Scurvy	5
Erysipelas	33	Tetanus	2
Influenza	380	Trachoma	27
Measles	196	Typhoid fever	55
Mumps	49	Typhus fever	2
Paratyphoid fever	4	Whooping cough	202
Puerperal fever	2		

Population, estimated, 1,900,000

UNION OF SOUTH AFRICA

Typhus fever—January, 1927.—During the month of January, 1927, 57 cases of typhus fever with 7 deaths were reported in the Union of South Africa, the distribution of occurrence, according to States, being as follows: Cape Province, 38 cases with 4 deaths; Natal, 6 cases; Orange Free State, 12 cases with 3 deaths; Transvaal, 1 case. The occurrence was in the colored or native population. In addition, 3 cases were reported in the European population.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended April 15, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Feb. 6-19			Present.
India:				
Calcutta	Feb. 13-26	102	79	
Madras	Feb. 27-Mar. 5	1	1	
Rangoon	Feb. 13-26	31	27	
Indo-China				August, 1926: Cases, 1,242; deaths, 926. One case in European.
Annam	Aug. 1-31	296	223	
Cambodia	do	156	120	
Cochin China	do	42	32	
Kwang-Chow-Wan	do	483	361	
Laos	do	32	26	
Tonkin	do	233	164	1 case, European.

PLAGUE

Place	Date	Cases	Deaths	Remarks
Angola:				
Benguela District	Jan. 19-31	1		At Cavaco.
Mossamedes District	do	3		At Port Alexander.
Ceylon:				
Colombo	Feb. 20-26	6	5	
China:				
Nanking	Feb. 6-Mar. 5			Present.
India:				
Madras Presidency	Feb. 6-12	65	38	
Rangoon	Feb. 12-26	11	9	Jan. 9-15, 1927: Cases, 3; deaths, 3. Out of date.
Indo-China				August, 1927; Cases, 10; deaths, 9.
Province—				
Cambodia	Aug. 1-31	4	4	
Cochin China	do	6	5	
Java:				
Batavia	Feb. 12-26	45	45	Province.
East Java and Madura	Jan. 30-Feb. 12	7	7	
Union of South Africa:				
Cape Province—				
Cradock District	Feb. 13-19	1		Native. On farm.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Canada	Mar. 20-26	38		
Alberta	do	30		
British Columbia—				
Vancouver	Mar. 13-20	1		
Ontario	Mar. 20-26	8		
Toronto	Mar. 13-26	8		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 15, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Feb. 6-19			Present.
Hongkong	Feb. 20-26	8	6	
Nanking	Feb. 6-Mar. 5			Do.
Tientsin	Feb. 20-26	9		Reported by one mission hospital and British municipality.
Great Britain:				
England and Wales—				
Birmingham	Mar. 13-19	5		
Sheffield	Mar. 6-19	39		
Guatemala:				
Guatemala Department	Feb. 1-28		28	
India:				
Bombay	Feb. 13-26	83	44	
Calcutta	do	378	267	
Karachi	Feb. 20-26	2	1	
Madras	Feb. 27-Mar. 5	30		
Rangoon	Feb. 13-26	43	14	Jan. 9-15, 1927: Cases, 6. Received out of date.
Indo-China				August, 1926: Cases, 23; deaths, 9.
Province—				
Annam	Aug. 1-31	5	2	
Cambodia	do	7	3	
Cochin China	do	3	1	
Laos	do	1	1	
Tonkin	do	7	2	
Mexico:				
Manzanillo	Mar. 22			1 case in vicinity.
Monterey	Mar. 11-20	4	2	
San Luis Potosi	Mar. 20-26		2	
Torreon	Mar. 13-19		1	
Portugal:				
Lisbon	Mar. 6-12	4		
Siam				Feb. 13-19, 1927: Cases, 14; deaths, 2. Apr. 1, 1926-Feb. 19, 1927: Cases, 753; deaths, 283.
Bangkok	Feb. 13-19	3	1	District.
Sierra Leone:				
Makeni	Feb. 22-28	3		
Spain.				
Valencia	Mar. 13-19	3		
Tunis:				
Tunis	Mar. 1-10	2		

TYPHUS FEVER

Algeria:				
Algiers	Feb. 21-28	3		
Estonia				January, 1927: Cases, 7.
Indo-China:				
Tonkin Province	Aug. 1-31	2		
Latvia	Jan. 1-31	2		
Poland				Jan. 10-Feb. 12, 1927: Cases, 298; deaths, 28.
Union of South Africa				January, 1927: Cases, 57; deaths, 7 (native); European, cases, 3.
Cape Province				Jan. 1-31, 1927: Cases, 38; deaths, 4 (native).
Natal				Jan. 1-31, 1927: Cases, 6 (native).
Orange Free State				Jan. 1-31, 1927: Cases, 12; deaths, 3 (native).
Do	Feb. 13-19			Outbreaks.
Transvaal				Jan. 1-31, 1927: Cases, 1 (native).

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-8			Do.
Tsingtao	Nov. 14-Dec. 11			Do
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-22			Cases, 9,029; deaths, 5,063.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Feb. 12	352	271	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-8	8	6	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Feb. 12	12	12	
Indo-China	July 1-31			Cases, 2,204; deaths, 1,350. European, 1.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July, 1926	215	178	July, 1925: Cases, none.
Cambodia	do	571	352	1 European, fatal. July, 1925. Cases, 3.
Cochin China	do	390	317	July, 1925: Cases, 6; deaths, 2.
Kwang-Chow-Wan	do	220		July, 1925: Cases, 22; deaths, 15.
Laos	do	24	21	July, 1925: Case, 1.
Tonkin	do	784	482	July, 1925: Cases, 3; death, 1.
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Feb. 12			Cases, 192; deaths, 142.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Feb. 12	14	5	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Argentina	Jan. 9-15	5		
Azores:				
St. Michael's Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Algere	Jan. 23	2	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Feb. 19	24	10	9 plague rodents.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Prevalent.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-28			Cases, 13.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-22			Cases, 4,535; deaths, 3,047.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Feb. 12	4	4	
Madras	Oct. 31-Jan. 1	581	324	
Do	Jan. 2-Feb. 5	507	325	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Feb. 12	26	23	
Indo-China	July 1-31			Cases, 24; deaths, 10.
Province—				
Cambodia	July, 1926	6	6	July, 1925: Cases, 16; deaths, 12.
Cochin-China	do	8	4	July, 1925: No cases.
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 15.
Iraq:				
Baghdad	Jan. 23-Feb. 5	2	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Feb. 12	157	150	
East Java and Madura	Oct. 24-Jan. 1	17	17	
Do	Jan. 2-27	5	5	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan. 1-15	9	9	
Analalava	Oct. 16-31	1	1	
Antisirabe	Dec. 16-31	2	2	
Do	Jan. 1-15	5	5	
Diego-Suarez	do	4	4	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan. 1-15	8	8	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-15	29	27	
Tamatave	Oct. 16-Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1-15	104	99	
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	34	
Do	Jan. 1-15	1	1	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Nigeria	Aug. 1-Nov. 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-31	47	10	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru—Continued.				
Departments—Continued.				
Lambayeque	Nov. 1-30			Present in Province.
Chiclayo	do	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-31	1		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-31	46	10	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Feb. 12			Cases, 7; deaths, 5.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-8	2	1	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-20	86		
Algiers	Dec. 11-31	4		
Do	Jan. 1-Feb. 10	3		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 12	51	25	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Mar. 19			Cases, 463.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Mar. 19	147		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Mar. 19	33		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 6	6		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Mar. 12	20		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Mar. 19	249		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Mar. 26	6		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Mar. 12	62	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Mar. 12	45		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Feb. 19			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Feb. 5			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 8	48	32	
Manchuria—				
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-15			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 30-Feb. 26		2	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-Feb. 19	11		
Chosen	Aug. 1-Nov. 30	53	19	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Dec. 31	203		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Feb. 20	17	3	
French Settlements in India	Aug. 29-Dec. 18	118	118	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Mar. 5			Cases, 4,491.
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Dundee	Mar. 31	42		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Mar. 12	16		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Mar. 5	484		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-31		23	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,000.
Do	Jan. 2-22			Cases, 14,228; deaths, 3,495.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-Feb. 12	140	74	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-Feb. 12	714	524	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Feb. 12	26	24	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Feb. 26	163	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Feb. 19	58	9	
Indo-China	July 1-31			Cases, 29; deaths, 10.
Province—				
Annam	July, 1926	6	3	July, 1925: Cases, 39; deaths, 7.
Cambodia	do	11	4	July, 1925: Cases, 62; deaths, 18.
Cochin-China	do	6	1	July, 1925: Cases, 12; deaths, 7.
Laos	do	3	1	July, 1925: Cases, none.
Tonkin	do	3	1	July, 1925: Cases, 31; deaths, 3.
Saigon	Dec. 26-Jan. 1	3		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-29	1		
Barsa	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 12	95		Do.
Japan	Oct. 24-Dec. 25	25		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5	6		
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Feb. 26	5		Do.
Nuevo Leon State:				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	do			About 60 cases reported in one hospital; other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Mar. 12		22	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 5		12	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Nov. 30	78	4	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Mar. 5	25		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Mar. 6	3		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 268.
Do	Jan. 2-Feb. 12			Cases, 28, deaths, 13.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Feb. 5	18	12	
Sierra Leone:				
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Mar. 5	4		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-20	8		
Tunis	Jan. 1-10	1		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec 5-11			Do.
Steynsburg district	do			Do
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality: Total from date of outbreak. Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethal district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-20			Cases, 21.
Algiers	Feb. 1-20	12		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Chile:				
Concepcion	Jan. 23-29		1	
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	4	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Nov. 30	43	2	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-28	1		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 8, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-28	4		
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Lithuania	Sept. 1-Dec. 31	41	4	
Mexico	July 1-Oct. 31			Deaths, 534.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Mar. 5	58		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-15			Cases, 115; deaths, 4.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-20	21		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 16-22			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 16-Feb. 5			Outbreaks.
Transvaal	Oct. 1-31	1		
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Feb. 28	65	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

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SPECIAL ARTICLES

Water Supplies on Canadian Great Lakes Vessels
Screening Studies in Leflore County, Mississippi
Patients in Hospitals for the Insane, October, 1926

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

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WATER SUPPLIES ON CANADIAN GREAT LAKES VESSELS

By G. H. FERGUSON, *Chief Engineer*, Department of Health, Canada

By authority of an Order in Council dated June 19, 1923, regulations were drawn up regarding the standard quality of water for drinking and culinary purposes aboard vessels engaged in navigation on the Great Lakes and inland waters of Canada.[1] For various reasons the enforcement of these regulations has been attempted as yet only on Lakes Ontario, Erie, Huron, and Superior of the Great Lakes system.

Work on this subject was carried on throughout January and February, 1926, through the medium of a series of lectures given at the schools of navigation and marine engineering that are situated at various ports on the Great Lakes system. In this manner it was possible to get in contact with the coming generation of ships' masters and engineers under the best circumstances and at a time when questions could be asked and answered. The actual field work was commenced about the middle of March, 1925, and was carried on until the end of November.

During the season of 1925, 908 routine visits to Great Lakes vessels were made by health officials, in addition to which certain examinations of steamship water systems were carried out in response to special requests by steamship operators.

As during the season of 1923 and 1924, a physical examination was made of the pumps, pipes, tanks, outlets, and water purification apparatus, if any (in addition to a quick reconnaissance of the vessels themselves for possible sources of contamination of the water supplies), in order to determine the eligibility of the various passenger steamships for the certificates required by the Order in Council (P. C. 1091).

In addition to the physical examination of water-supply systems installed on various steamships, information and advice of a technical nature were given to navigation companies. Plans of proposed water-supply systems for new steamships in the course of construction, on being submitted for approval, were duly checked up, and were corrected when such action seemed advisable.

[1] These regulations are practically identical with the United States Interstate Quarantine Regulations. The Canadian Department of Health and the United States Public Health Service have worked in close cooperation in enforcing their respective regulations, to the mutual advantage of the two countries.

During the season, visits were made to the docks at the terminal ports of the various fleets of steamships engaged in this traffic, and correspondence and interviews with health and navigation officials and other persons concerned were carried on regarding the certification of water supplies ashore, compliance or noncompliance with the regulations, and other related matters. In this connection it was possible greatly to improve the water-supply service at the dock at Sault Ste. Marie, Ontario.

Considerable cooperative work was carried on, as in former years, with the representatives of the United States Public Health Service, by mutual visits to international points. Through the medium of the mails, reports of inspection of vessel water-supply systems, water-analyses reports, certification of shore-water supplies, lists of steamships certificated, etc., were exchanged. So, also, by arrangement with the United States Public Health Service, intermittent inspection of vessel water-supply systems on Canadian steamships passing through Sault Ste. Marie, Mich., was carried on by the health inspector stationed at that point.

Throughout the season, steamship companies operating vessels in Great Lakes traffic have been supplied regularly with copies of water-analyses reports and, wherever it has seemed advisable, attention of the management of these organizations was drawn to flagrant carelessness or violations of the regulations.

A measure of the size of the problem presented in the supervision of vessel water supplies is given by consideration of the following facts:

The through St. Lawrence and Great Lakes route, between Montreal and the head of Lake Superior, comprises 74 miles of canal, with 49 locks, and 1,140 miles of river and lake waters, or a total of 1,214 miles.

The Canadian fleet was augmented by the addition of 42 steel bulk freighters, of which number 25 were built in Great Britain and delivered to the Lakes for the grain and coal trade. The newly established Tree Line Steamships Limited, a subsidiary of the Ogilvie Flour Milling Co. of Montreal, brought to the Lakes from France a fleet of 10 steamships that are practically new. Total additions to the fleet did not end here, however, for the attractiveness of the grain rates brought 14 small cargo carriers from overseas ports, so that the number of vessels available for the grain trade to Montreal was the largest in history. In a recent season 5,791 vessel arrivals were reported at Montreal from ports on the inland waters.

Enormous as the shipbuilding program proved to be in 1925, lake and foreign yards are building vessels for future delivery. Five double-deck package freight and bulk carriers were built in a St. Lawrence River yard for the Canada Steamship Lines; 16 ships of Welland Canal size were constructed in Great Britain for the Eastern

Steamship Co. At Midland a bulk freighter 633 feet long over all, 70 feet beam, and 33 feet in depth was launched. This freighter has the greatest length and the broadest beam of the vessels on the Great Lakes system.

The relative extent of the Great Lakes traffic may be conceived by comparing the number of vessels passing through the Sault Ste. Marie Canals with the number of vessels that annually pass through the Panama and Suez routes. The total number of commercial vessels that passed through the Panama Canal for the year ending June 30, 1925, was 4,673, which was almost twice as many as passed through the canal in any year up to 1921. For the fiscal year 1924 the traffic on the Suez Canal totaled 5,121 ships. The total number of vessel passages through the canals at Sault Ste. Marie, Mich., and Ontario for the season of navigation of 1925 was 20,650, or double the combined total for the Panama and Suez Canals.

Similarly, records of commerce passing through the Detroit River during the season of navigation of 1925 show a total of 32,062 vessel passages, as compared with 28,118 for the preceding year (about 15 per cent increase).

With regard to the responsibility for the supervision of the supplies of water for drinking and culinary purposes on passenger steamships engaged in other than ferry service on the Great Lakes system, a general division of the traffic is as follows:

On the Lake Ontario-St. Lawrence River routes the passenger traffic is carried almost entirely by steamships of Canadian register. These vessels obtain their supplies of drinking and culinary water partially from certified sources ashore and partially from overboard en route. As, with only three exceptions, water-purification apparatus has not been installed on these passenger steamships, the drinking and culinary water available is subject to contamination, depending on the regularity with which the storage tanks and distributing systems have been flushed and chlorinated.

On Lakes Erie and Michigan, practically all of the passenger traffic is carried by steamships of United States register. The culinary and drinking water supplies are safeguarded aboard these vessels by water-purification apparatus of approved type.

On the Lakes Huron-Superior service data supplied from official sources show that steamships of Canadian register in 1924 carried 67 per cent of the traveling public. By the installation of water-purification apparatus of approved type and careful supervision of its operation it has been possible greatly to improve the drinking and culinary water supplies of these steamships and bring them to the standard of the regulations.

The necessity for a continued check on vessel-water supplies, although the regulations have been in effect for over two and a half

years, is well illustrated by the following example: In the later part of October there was an outbreak of diarrhea and typhoid fever among the crew of the United States steamship *Lake Gaither* so severe that in making the trip from Detroit to Montreal it was necessary to remove three typhoid patients from this ship on her arrival at Toronto, while five others were treated for typhoid fever after this vessel arrived at Montreal. All other members of the crew were required to report at the Montreal General Hospital for antityphoid inoculation.

The typhoid fever rate of a community is usually accepted as furnishing an indication of the sanitary quality of its drinking water and food. Unfortunately it is somewhat difficult to obtain statistics of sickness of former passengers after they have left the steamships. The reservation book of a single vessel will frequently carry the names of passengers from points scattered over the entire area from Halifax to Vancouver. A measure of the typhoid rate for the crews of Great Lakes vessels is, however, available in the records of the hospitals at the various ports. Patients who have developed typhoid fever aboard steamships on the inland waters of Canada have been admitted to hospitals over the entire area of the Great Lakes system, from Montreal to Fort William.

Owing to the large number of passenger steamships engaged in tourist traffic that pass through such port cities as Montreal and Quebec, it seems advisable that tests of drinking and culinary water supplies of these steamships should be made at frequent intervals in the near future. An investigation made in the summer of 1925 by the department of health of the State of New York traced the origin of the illness of an American tourist to a Canadian passenger steamship that sails regularly between Montreal and the Saguenay district.

During 1925 a visit to one of the large passenger steamships that ply between Montreal and the lower St. Lawrence River disclosed the condition that the crew's drinking-water tap was located quite close to the deck that formed the floor of a stable maintained aboard this vessel for the transport of horses. A pure supply of drinking water can be maintained only by constant vigilance and regular inspection.

In subsection (*b*) of section 7 of the regulations it is required that "Ice used for cooling table water shall be a clear and sanitary ice and shall be stored in a clean place, and before the ice is placed in the water or water receptacle it shall be carefully washed and handled in a sanitary manner."

Serious doubts having arisen in the minds of the officials in charge of the laboratory of health at Sault Ste. Marie, Ontario, as to the observance of the above regulations, samples of ice were collected from all of the passenger steamships that called at that port during

the season of navigation of 1925. In a large number of instances it was found that the ice in use had been taken aboard at the most convenient point in the form of natural ice. It was noted that, on the steamships *Noronic* and *Hamonic* of the Northern Navigation Co., apparatus had been installed for the manufacture of artificial ice aboard ship.

The samples of ice were examined in accordance with the approved methods of the American Public Health Association. As a result of the work done regarding ice, it was demonstrated that artificial ice of a good sanitary quality may be procured and handled in such a manner that its purity will remain unimpaired.

Since the regulations concerning water supplies for drinking and culinary purposes aboard vessels have been enforced there has been a reduction in the number of typhoid patients put ashore at Fort William from Great Lakes vessels. In 1923 the records give the number of typhoid cases from Great Lakes vessels hospitalized in Fort William as 14 while the returns for 1925 show no cases from this source.

PRELIMINARY REPORT OF SCREENING STUDIES IN LEFLORE COUNTY, MISS.

By C. P. Coogle, *Acting Assistant Surgeon, United States Public Health Service*

It is unfortunate that sanitarians operating in the malaria belt of the United States have failed to give sufficient attention to the possibilities of accomplishing control of malaria by means of minor or secondary measures that appear to be within financial reach of the families that suffer most from this disease.

The screening demonstrations conducted by the United States Public Health Service at Wilson, Va., in 1915, and at Tosches, Va., in 1916, gave very satisfactory results in malaria reduction. In 1916 the Public Health Service also directed a campaign on a plantation near Lake Village, Ark. These demonstrations, however, did not bring out all the facts connected with the value of screening as an antimalaria measure, some of which have been obtained in the present investigational study.

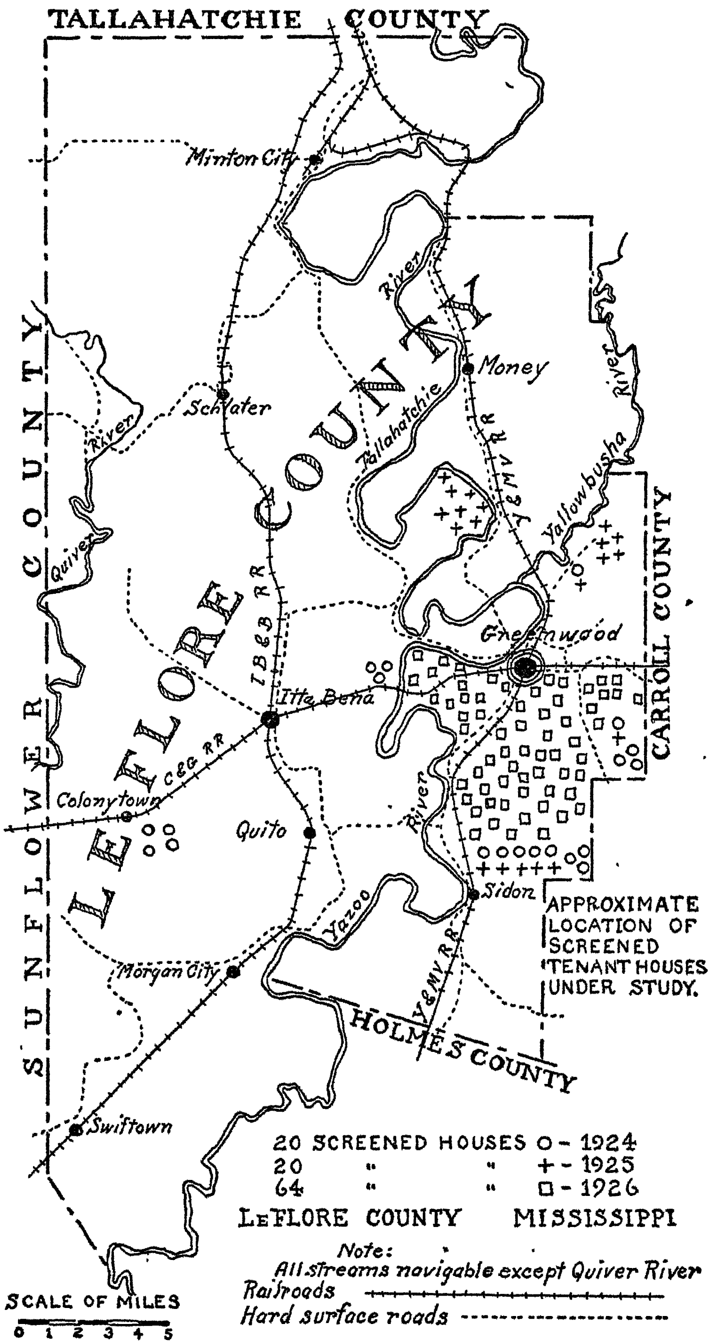
The problem of protecting farm-tenant families in poorly constructed houses from the bites of malaria-carrying mosquitoes is of serious sanitary importance throughout the malaria belt of the United States. In many agricultural districts it may be a number of years before sufficient drainage is secured to cause *Anopheles* mosquitoes to become very scarce, and, for economic reasons, a more rapid and less expensive means of malaria control than that of mosquito destruction is desirable.

The problem of protecting farm tenants from malaria by means of screens was discussed with more than 50 planters in the Mississippi delta region during the spring of 1924; and during these discussions other control measures, such as liquid repellents, smoke smudges, and mosquito bed nets, were also taken up. Some planters thought that farm tenants would not appreciate the protection received, and that the expenditure for screen material was not practical, because the amount expended was greater than the benefits derived. It appears to be a common opinion among the planters that farm-tenant families will not take care of screens, that they willfully destroy the screens, and that proper interest in the care of screening, at least by the general run of tenants, is not to be expected. Little encouragement was derived from these interviews. The planters have had experience with screening on a small and expensive scale, and their belief in its inefficiency is widespread and firmly fixed.

As a part of the study of rural malaria control which was being conducted by the United States Public Health Service in Leflore County, Miss., it was thought worth while to determine the annual cost per farm-tenant family for screen protection, and also, if possible, the reason for the failure of farm tenants to appreciate the value of screen protection. At the same time it was felt desirable to obtain approximate answers to the following questions relative to the problem:

(1) Can all tenant houses be adequately screened?
(2) Do the majority of tenants want screens on their homes?
(3) Is it economically advisable to attempt the screening of all inhabitable tenant houses?
(4) Will tenants take proper care of screens?
(5) In case it is shown that tenants will take proper care of screening, will the planters be able to see the real advantage of mosquito protection for their tenants?
(6) Can tenants be induced to desire screen protection from mosquitoes?
(7) How long will it take for the general run of tenants to distinguish between effective and ineffective screening?
(8) What screening materials are most suitable?
(9) What effective screening methods are economically feasible?
(10) How long will screens last, and what will be the complete cost per home per year?

The study of methods of screening farm-tenant houses was begun in Leflore County, Miss., early in 1924. During that season 20 tenant houses were screened and accurate data collected on cost of materials and on cost of labor; also frequent inspections were made to determine the effectiveness of the screen in keeping out mosquitoes.



Map showing location of houses screened

The same character of inspections and mosquito counts were made in near-by nonscreened homes, so that comparative data would be available. The data obtained from this first series of screen experiments were sufficiently promising to warrant their extension, and 20 additional tenant houses were effectively screened in 1925. The experience gained in screening the first series of homes in 1924 was used to advantage, and the same amount of mosquito protection was accomplished in the 1925 series at a much lower cost.

In order that the reader may visualize the location of the screening experiment during 1924 and 1925, there is shown on the accompanying map the approximate locations of the houses screened. Houses in small groups and widely separated were selected for the investigational study in order to include all types of tenant homes occupied by both white and colored tenants.

After it was found that tenant houses could be effectively screened, it was thought advisable to select a plantation and attempt to screen every tenant house on that plantation. During the spring of 1926, the W. L. Craig plantation, located in Leflore County, was selected and all of the tenant houses, a total of 64 inhabitable homes, were effectively screened. An equal number of other tenant homes on near-by plantations were kept under observation and inspected periodically, thus serving as a control group on mosquito infestation and malaria rate in screened versus nonscreened homes.

In tabulating the data collected from the 104 screened homes and from a similar number of unscreened homes included in this study, it was found that a summary of the *Anopheles* mosquito catches in these houses showed that eight times as many *Anopheles quadrimaculatus* were found in unscreened houses as in screened houses. During the active mosquito season, bimonthly inspections were made at regular intervals and an average of 2.2 *Anopheles quadrimaculatus* was noted per screened house per inspection, as compared with an average of 16.5 per unscreened house per inspection.

The malaria sick rate of persons living in the screened houses for more than four months during the malaria transmission season was only 29 per cent of that of the group living in the unscreened homes of the control group. Twenty-four cases of malaria occurred in the 104 screened houses and 84 cases of malaria occurred in the 104 unscreened houses.

The following data and answers to the 10 questions related to this investigation are based on the field notes collected during the installation and inspection of the screening.

Can all Farm Tenant Houses be Adequately Screened?

This study of the application of screen to plantation tenant houses appears to indicate that practically all inhabitable tenant houses can be effectively screened, although it will frequently be necessary to do

more or less chinking work to close the numerous cracks, knot holes, and misfit joints in walls and ceilings. Those who have not seen such work done are usually surprised to learn how relatively easy and inexpensive it is to chink holes and cracks with paper or cloth, old rags, etc., or to cover floor cracks and knot holes with small strips of tin. The use of gummed paper strips is often advisable, and it has been found advantageous to tack these strips with small tacks, some 6 to 12 inches apart in addition to gluing them. When, in order to cover the cracks in the rough wood, it is desirable completely to cover the walls, paper can be used. It was found that heavy brown Manila paper was satisfactory for this purpose, and very cheap. The cost of this paper and the tacks for covering a room 16 by 16 by 9 feet, including the ceiling, is about $3.

Do the Majority of Tenants Want Screens on Their Homes?

Undoubtedly, yes! The majority of tenants in the territory investigated want screens. The following incident should answer the question:

In Leflore County, Miss., a planter called ten of his tenants into his office. Without any preliminary explanation the planter astounded them with the following proposition: "I am going to give each one of you men your choice of one of four things, on condition that you are not to talk to each other about your preference until after you have made your selection: (1) You may have your home screened; (2) you may have a new bed net for each bed in your home; (3) you may have a $1 bottle of mosquito exterminator solution each week during July, August, and September; or (4) I will pay $10 on your family doctor's bill this summer." The men were silent; then, one by one, they arose and passed into a near-by room, out of hearing of the others. Every man chose screens for his home, and to-day every home on this plantation is screened.

Is it Economically Advisable to Attempt the Screening of all Inhabitable Tenant Houses?

Planters are business men, and it must be realized that they are not in the farming business to accommodate the tenants. The tenants are on the plantations to supply the labor, and the tenant house is for the purpose of keeping the labor close to the crop. The amount of money invested in tenant houses varies with the management of different plantations. Some managers prefer a $600 or $700 tenant house; they claim good tenant houses attract choice tenants. Other managers believe they can produce more cotton by having twice the number of families in $200 or $300 tenant houses. The general trend in the delta region, however, is toward better tenant houses. In the past, mosquitoes and health protection have been considered the tenant's responsibility, and only at a time of malaria epidemics or

when sickness greatly reduced the needed labor supply has the planter been much concerned about the health and living conditions of his tenants. He often appeared to be more concerned about the gnats and flies pestering his mules, because he saw the damage that they did. But times are changing; and the higher the cost of labor, the less becomes the number of working days the planter can afford to lose on account of sickness among his tenants. Therefore, there is a natural tendency toward health improvement in order to conserve labor. Lower cost of installation and proper care of screens should bring about a more general use of screens for tenant homes.

Will Tenants Take Proper Care of Screens?

Contrary to the former belief of most planters and business men of this section, tenants do take reasonably good care of screens when they understand the importance of doing so. This has been definitely proved in the case of the tenant homes under observation. The screening on 20 of the houses, which was installed three years ago, has been well cared for, is in excellent condition, and will be effective for the fourth year. The 20 homes screened two years ago, and the additional 64 homes screened in 1926, have also been given satisfactory care. Some of these houses have been occupied by white and some by colored tenants, many of the families having from three to eight children. Eight of this series of 20 houses which have been screened for more than three years have had three separate sets of tenants during that period.

In Case it is Shown that Tenants Will Take Proper Care of Screening, Will the Planters be Able to See the Real Advantage of Mosquito Protection for Their Tenants?

One can always expect the planter to be on the alert and ready to invest in screening if it can be shown to be to his advantage. Cotton is a crop that may be produced even though there is a temporary interruption of the labor from time to time during cultivation and picking. Since epidemics of malaria have been of rare occurrence recently, the planter is likely to feel that there will be just as many pounds of cotton produced for him without this extra outlay of money for screens on his tenant houses. The scope of screening studies to date has been too small to provide any reasonably accurate data on the actual saving in man hours of labor, which is the essential unit of measurement on which the planter bases his profits and losses.

Can Tenants be Induced to Desire Screen Protection From Mosquitoes?

It was thought that the answer to this question might be based on the care which the tenants gave the screening during this study, and from the expressions of tenants living in unscreened houses, who

would actually build the screen doors and screen windows themselves, if the screening materials were furnished by the planter. The investigations indicated that negro tenants readily acquire an interest in and desire for mosquito protection, and, generally speaking, a large percentage of them would do the work effectively themselves if they thoroughly understood what it was for, and if they could get the screening materials.

The tenant's life is usually one of change, buoyed by hope. The colored tenant is largely guided by the plantation manager. The white tenant thinks he can plan his own destiny and often finds he is mistaken. Near the end of the season he becomes dissatisfied and moves to another place, and does so again and again in the years that follow. The white tenant also usually complains more about his housing conditions than does the negro tenant. The latter seems to be more appreciative of his screens and takes better care of them than does the white tenant under similar circumstances. The negro looks forward to having his home inspected, and it is not difficult to teach him to repair minor breaks in the screens. The white tenant is usually more delinquent about repairs and often seems to be slightly resentful of house inspections. He would rather tell about the screens while at a distance from the house than have the condition of the screens inspected on the premises. The negro tenant will discontinue the use of smoke smudges and bed nets (the usual prevailing custom) shortly after the installation of screens on his home.

How Long Will it Take the General Run of Tenants to Distinguish Between Effective and Ineffective Screening?

At the beginning of these studies it seemed to be quite difficult for most tenants to realize the importance of properly fitted screens, but this was overcome by simple, painstaking explanation of screen construction and its purpose. There was a noticeable change within a year in the territory under study. The following story has been used when it was desired to interest the farm tenant in proper screening methods and effective screen maintenance, illustrating in simple language the purpose of adequate screening:

In building a jail, the walls, ceilings, and floors are tightly constructed, and bars are placed over the windows and doors, so that dangerous men who are locked in the jail can not get out, even though they try to do so. Now, in screening a house we want to close up all the cracks and holes, and place screens over the windows and make tightly fitting screen doors, in order to *keep out* dangerous insects, such as mosquitoes and flies. These insects try just as hard to get into your house as those dangerous men try to get out of jail.

What Screening Materials Are Most Suitable?

It appears from experience that galvanized iron screen wire, No. 16 mesh, is perhaps the most satisfactory and economical for general use in the delta region.

What Effective Screening Methods are Economically Feasible?

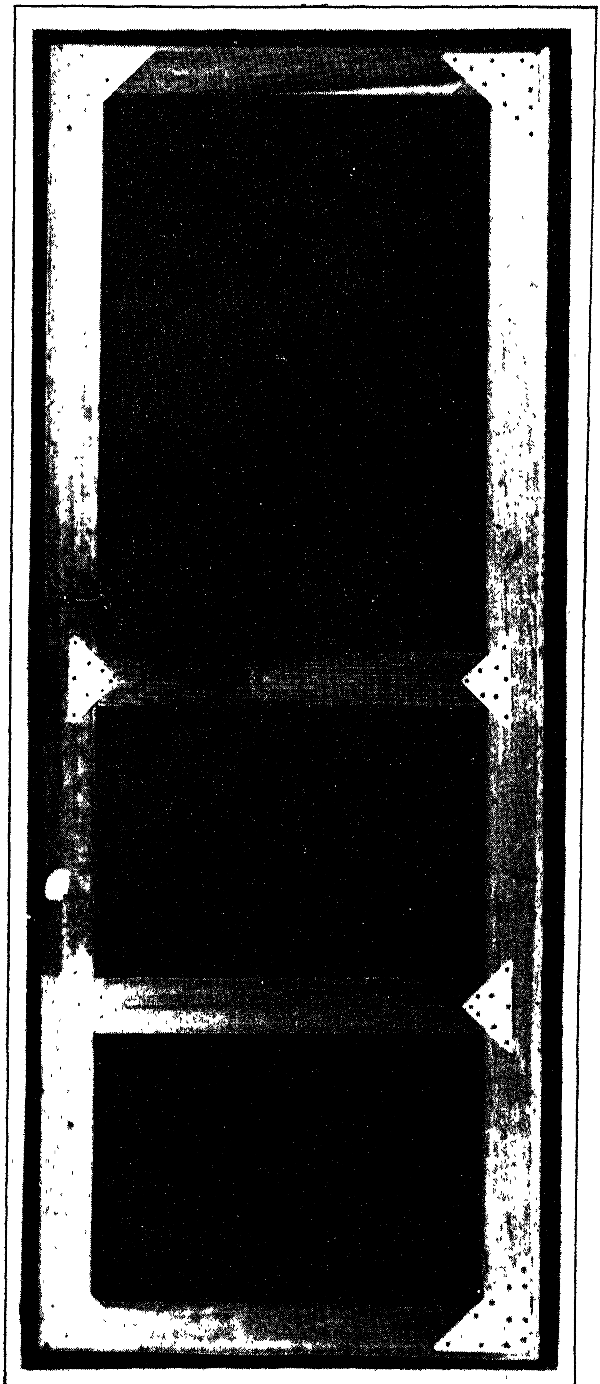
(A) *For windows.*—In this screening study it was deemed best to screen the entire window instead of the lower half, which is the usual custom in this territory. In most instances the upper window sash is stationary, and at first it might seem unnecessary to cover this sash with screen; but a broken pane of glass may seriously reduce the efficiency of the screens, and if the entire window is covered, a broken pane of glass does not matter.

Screen wire was tacked on the outside of the window frame, the full length of the window, allowing about an inch lap along the top and along each side, and a 2-inch lap at the bottom. It is the bottom of the screen window that receives the most wear; therefore an additional inch of screen wire is needed there. The screen wire was fastened in place by a row of tacks spaced about 2 inches apart along the top of the window and at the side, and by two parallel rows, with an intervening space of 1 inch, across the bottom. When metal screening was used, no advantage was gained by tacking the screen to the lower edge of the upper sash, or by placing a cross bar in the center of the window. Tacking the top, the sides, and the bottom in the manner described is sufficient.

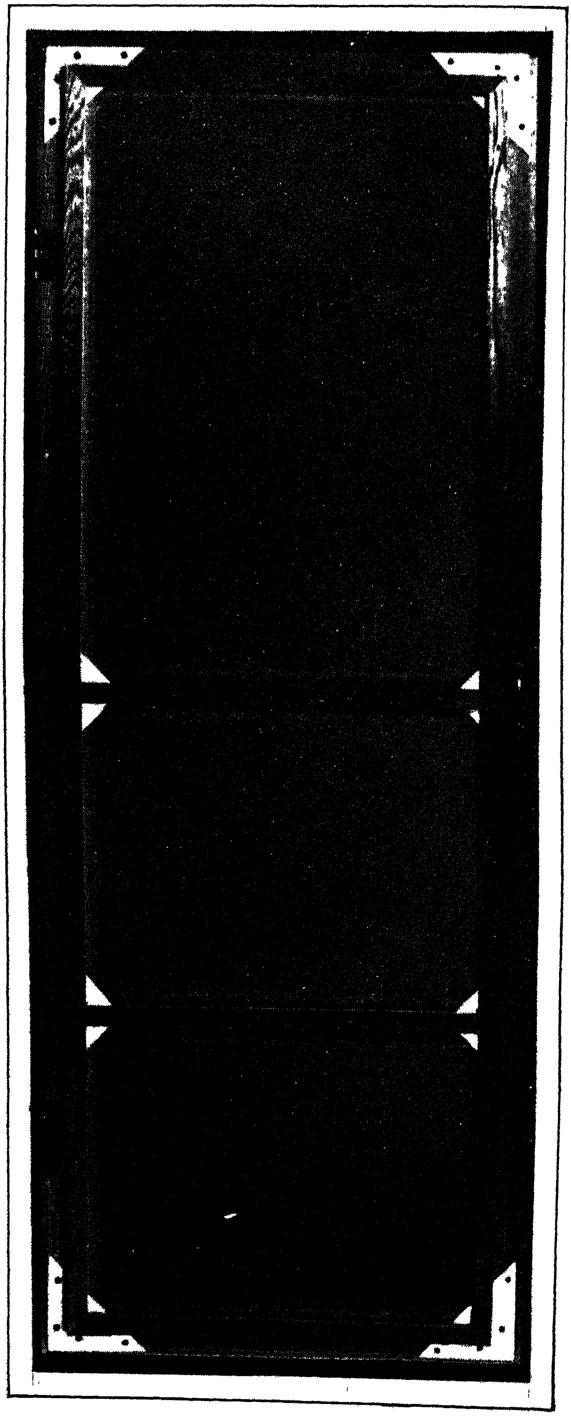
(B) *Screen doors.*—Screen doors made of lumber 1 inch thick and 3 inches wide proved to be satisfactory in every way. White surfaced lumber has a better appearance, but rough lumber is as serviceable and is about 25 per cent cheaper. Any kind of lumber will do if it is dry, unwarped, and free from knots.

The screen door must be made to fit tight, either to the outside of the casing or the inside of the door jamb. Screen doors that are fitted to the outside of the door casing are surrounded by a 1-inch by 1-inch strip, which acts as an additional casing to the screen door.

Screen door construction.—The corners of the screen door are put together after the ends of the sides and the top and bottom pieces are cut at an angle of 45 degrees. By using a miter box even inexperienced persons will find no difficulty in making perfectly fitting joints. Twenty-four gauge galvanized-iron triangle plates (6-inch squares cut in half diagonally) are placed on all corners and also on the cross bars on each side of the door, making a total of 16 metal plates for each door. (See illustrations of door.) From 6 to 10 nails are driven through each metal plate and clinched, giving 128 fixed contacts per door. This construction makes a strong and rigid door that will not sag and will stay in place under fairly rough usage.



Inside of screen door



Outside of screen door

In constructing screen doors of this type, the metal plates on one side of the door may be put on with screws, using 6 to 10 screws per plate. When screws are used to fasten on the plates, it is best to place the screen wire on the door and make the plates overlap the corners of the screen wire; then, in case it becomes necessary to rescreen a door, the plates can easily be removed, the door rescreened, and the plates replaced without injury to the door. The screen wire

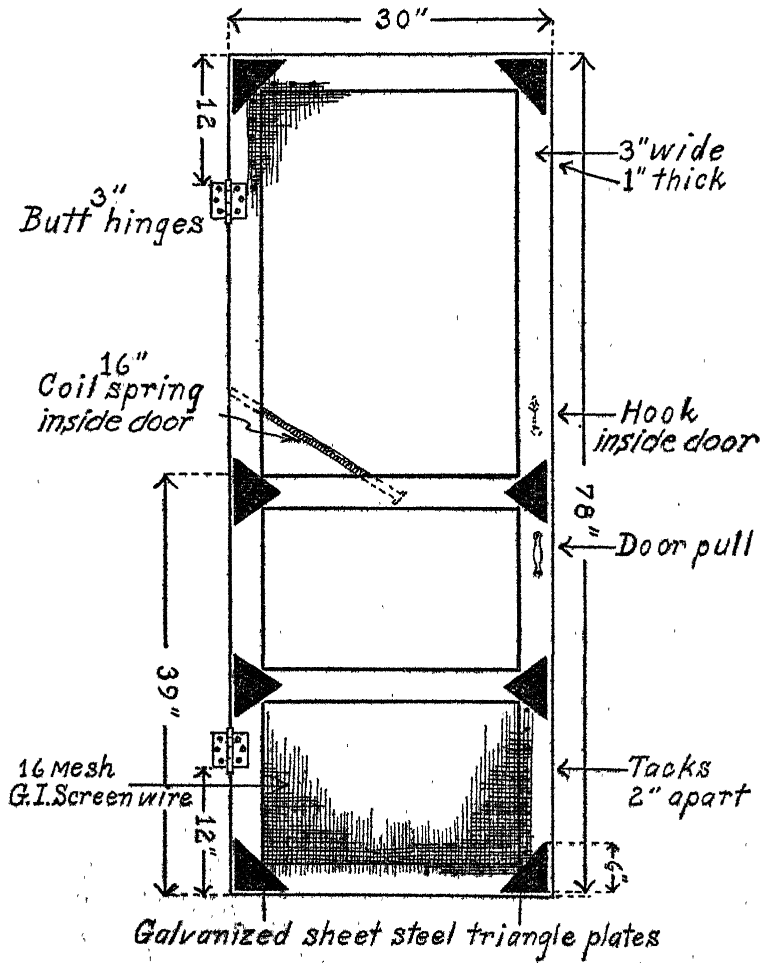


FIG. 1.—Details of construction

is fastened to the door by placing tacks 2 to 2½ inches apart across the top, down each side, across the two cross bars, and across the bottom.

The proper hanging of the screen door is very important. If the door is swung inside the door jamb, care must be taken to see that the hinges are set properly in order to have the door swing clear.

Comparative costs of materials for screen doors

1924 (Coogle, Foster, and Chambless)		1925 (Coogle and Chambless)		1926 (Coogle, King, and Chambless)	
Lumber	$0.423	Lumber	$0.445	Lumber	$0.445
Galvanized plates	.110	Galvanized plates	.125	Galvanized plates	.138
Screen wire	.640	Screen wire	.445	Screen wire	.432
Hinges	.330	Hinges	.128	Hinges	.128
Nails and tacks	.037	Nails and tacks	.025	Nails and tacks	.023
Springs	.100	Springs	.05	Springs	.05
Hooks and eyes	.100	Hooks and eyes	.03	Hooks and eyes	.022
Door pulls	.000	Door pulls	.03	Door pulls	.03
Door strips	.000	Door strips	.07	Door strips	.07
Screws for hinges	.000	Screws for hinges	.06	Screws for hinges	.137
	1.740		1.408		1.475

Comparative costs of labor for construction and erection of doors

1924	1925	1926
Three hours 5 minutes at $0.448 per hour, $1.38. For construction only.	Three hours at $0.25 per hour, $0.75. Cost of labor per door for construction and erection.	Two hours 47 minutes at $0.20 per hour, $0.556. Cost of labor per door for construction and erection.
Total cost per door in place, $5.65. This cost is based on the construction and erection of 54 doors.	Total cost per door in place, $2.15. This cost is based on the construction and erection of 56 doors.	Total cost per door in place, $2.03. This cost is based on the construction and erection of 90 doors.

Comparative costs of screen windows

(Screening over full window outside)

1924 (Coogle, Foster, and Chambless)		1925 (Coogle and Chambless)		1926 (Coogle, King, and Chambless)	
Estimates based on cost of 57 windows:		Estimates based on cost of 55 windows:		Estimates based on cost of 218 windows:	
Screen wire	$0.444	Screen wire	$0.410	Screen wire	$0.352
Tacks	.012	Tacks	.015	Tacks	.015
Labor cost	.700	Labor cost	.110	Labor cost	.058
	1.156		.535		.425

RATS RESPONSIBLE FOR FOOD INFECTION

The following, regarding the percentage of rats found infected with bacteria pathogenic for man, and, therefore, potential food poisoners, is taken from the Weekly Bulletin for April 2, 1927, issued by the California State Board of Health:

In spite of active campaigns against wild rats in some cities, the danger of food poisoning from them is still an important problem, and in cities where no eradication is attempted the danger is probably much greater.

This conclusion has been reached by two members of the staff of the University of California Hooper Foundation for Medical Research, Director Karl F. Meyer and K. Matsumura, as a result of a survey of disease-carrying rats in San Francisco completed recently.

With the aid of the United States Public Health Service, 775 wild rats were gathered at various places in the city, and of this number 58 were found to be infected with one or two bacterial diseases capable of transmission from individual to individual.

Approximately 2 per cent of the rodents carried bacteria in the intestinal tract and were capable of shedding highly virulent bacilli in their droppings, and thus of infecting food. The disease-carrying rats proved to be about 6 per cent in the vicinity of slaughter houses, retail, and second-class residential districts.

In addition to offering this information to encourage those already fighting food-poisoning epidemics, the authors believe it should serve as a warning to

those cities making no efforts to control rodents. Comparing the fairly good conditions of California with other places, the authors say: "If the data presented picture conditions as they exist in the community with a scattered rat population, then it is theoretically reasonable to fear that in other cities or towns with a prolific, undisturbed rodent class, a higher morbidity will increase the carrier rate."

The widespread infection of the rats of the city leads to the conclusion that food may be contaminated either at its source or in the home. In trying out the pathogenicity of the bacteria, small quantities of the droppings were placed in the food of kittens and tame rats. They all became seriously sick in from 18 to 24 hours.

This problem is aside from that of rat plague and represents part of a study made by the Hooper foundation on methods of preventing food poisoning. In another investigation carried on by Doctor Meyer and A. P. Batchelder, in Oakland, it was discovered that there are four rat diseases carried by rodents in that place, namely, hemorrhagic septicemia, plague, rat typhoid, and pseudotuberculosis.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Unvaccinated child denied admission to public schools.—(New Hampshire Supreme Court; Cram *v.* School Board of Manchester et al., 136 A. 263; decided January 5, 1927.) The plaintiff sought by mandamus to compel the admission of his unvaccinated daughter to the public schools, a State law requiring the vaccination of pupils. The plaintiff's allegations were as follows:

That vaccination consists of performing a surgical operation by injecting a poison, the ingredients of which are not known, into the blood of said daughter and that will endanger her health and life, and he will not permit it to be done; that any law that requires his daughter to be vaccinated before she can attend the public schools denies him of liberty, health, and happiness that is guaranteed him by the Constitution of said State and of the United States.

The supreme court in its opinion said:

The plaintiff's allegations present a question that has been fully considered in other States and by the Supreme Court of the United States. The uniform conclusion has been that the allegations relate to a legislative question, and that they are immaterial here.

The court also quoted from a prior decision as follows:

It is not for the court to inquire into the wisdom or unwisdom of such legislation. Whether the act "be wise, reasonable, or expedient, is a legislative and not a judicial question."

License from State board of health required for maintenance of sanitarium or asylum.—(New Hampshire Supreme Court; Diepenbrock *v.* State Board of Health, 135 A. 531; decided December 7, 1926.) A State law provided that "No person or corporation shall locate, conduct or maintain a sanitarium or asylum for the reception of persons of unsound mind, or for the treatment of specific diseases, without having first obtained a license so to do from the State board

of health," and also provided that "all facts relating to the character of the proposed sanitarium or asylum and of the applicant shall be thoroughly investigated by said board, who shall, at their discretion, issue a license to such applicant, with such restrictions and regulations as they may deem necessary for the protection of the interests of the State." The plaintiff, a licensed chiropractor, sought by mandamus to compel the State board of health to grant him a license to maintain a sanitarium. The State board of health answered that the plaintiff was maintaining an asylum for the reception of persons of unsound mind, although a license for such an asylum had been refused by the board. The lower court, at the request of the State board of health, enjoined the plaintiff from maintaining the said asylum until duly licensed. The supreme court decided that the lower court had properly denied the plaintiff's motion to dissolve the injunction. The following are extracts from the court's opinion:

The power of the legislature to deal with all matters pertaining to the preservation of life and health can not be doubted. * * * Nor is the particular statute objectionable because it invests the defendants with power to issue licenses at their discretion. * * *

Apparently, the plaintiff does not question the constitutionality of the statute, but claims that, since he is a duly qualified chiropractor holding the requisite certificate (P. L. c. 206, sec. 10), he is not subject to the provisions of chapter 131, or else is entitled to a license as a matter of right.

His contention is without merit. The law applies to all persons indiscriminately. Practitioners of medicine and surgery, as well as chiropractors, are required to pass an examination and receive a license before they are permitted to practice in this State, but the license so received does not permit either a chiropractor or a physician to maintain an asylum for the reception of persons of unsound mind until the State board of health, in the exercise of reasonable discretion have granted a license for that specific purpose. * * *

ECONOMIC STATUS AND HEALTH

In view of the fact that many statements have been made in general terms with respect to the effect, or lack of effect, of economic status on disease prevalence, S. D. Collins, associate statistician of the Public Health Service, has made a collection and analytical review of the available data regarding the bearing of economic status on morbidity and mortality. This study, soon to be issued as Public Health Bulletin No. 165, considers the death rates from specific causes for specific periods of life, in an attempt to find which causes of death vary with economic status, and, of those which vary, which increase and which decrease as economic status falls.

Among adults, death rates for the great majority of the common causes of death tend to be higher among the poorer classes, but death from diabetes, gout, and diseases of the liver tend to be lower among the poorer classes than among the well-to-do.

Among infants, death rates from gastric and intestinal, respiratory, and epidemic infectious diseases are much higher among the poorer classes, but death rates from premature birth, congenital malformations, and other causes associated with early infancy are relatively constant in the different economic classes.

The factors involved in the phenomenon of varying sickness and death rates among different economic groups seem to be of a specific character; but at present, data are not available to show the relative importance of environment, heredity, and selection, all three of which are no doubt important in the problem.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Lead Poisoning. J. C. Aub, L. T. Fairhall, A. S. Minot, and P. Reznikoff. London, 1926. Bailliere, Tindall & Cox. 265 pp. Review, in the *Journal of State Medicine*, Vol. 35, No. 1, January, 1927, p. 61.

"This work constitutes volume 7 of medicine monographs and contains a full report of the study of lead poisoning carried out at Harvard Medical School. As lead intoxication is a common cause of industrial poisoning, the publication of this monograph is opportune. It represents a vast amount of work, and much of the experimental work is original. Doctor Aub and his collaborators have studied the problem of lead poisoning from all points of view. The chemical studies are interesting. Lead is found to exist in the blood only in very small amount. It has generally been thought that lead exists as an albuminate, but the writers conclude that in the blood it is present in colloidal suspension rather than in solution and probably as colloidal lead phosphate. This book is a valuable contribution to a subject of great importance in industrial medicine and public health. It can cordially be recommended to industrial physicians, general practitioners, and public health workers, and deals with the subject in an exhaustive manner. Mention must be made of the copious bibliography comprising 500 references."

Carbon Monoxide Poisoning in Industry. May R. Mayers. *American Journal of Public Health*, Vol. 17, No. 2, February, 1927, p. 108. (Abstract by Leonard Greenburg.)

The bureau of industrial hygiene of the State of New York is engaged in making a study of carbon monoxide in industry. The object of the study is to determine the precise extent of the hazard in the State and the conditions producing this hazard; and also the determination, by means of physical examinations, of the physiological effects of chronic exposure to relatively small concentrations of the gas. The study so far conducted consists of seven air tests which showed a concentration of carbon monoxide ranging from 2.3 to 11 parts per 10,000 in certain service stations. The carbon monoxide in the blood of the workers studied ranged from 2.3 per cent to 40 per cent saturation. The oxygen content of the blood examined ranged from 2.4 volumes per cent to 10.8 volumes per cent, the normal being approximately 19 volumes per cent. The average value was found to be 5.8 volumes per cent. The hemoglobin ranged from 40 per cent to 154 per cent, apparently showing a compensatory tendency to increase in amount.

Doctor Mayers presents a very interesting discussion of the peculiar ashen pallor associated with headache which is usually found in workers exposed to carbon monoxide for any period of time. Her belief is that the headache might

possibly be due to an increased intracranial pressure caused by the hyperemia of the large blood vessels of the brain.

The study of the inorganic ions in blood was undertaken, but so far has not yielded any definite results.

Sewage from Lower Merion Pumped to Philadelphia System. Francis S. Friel. *Engineering News-Record*, Vol. 98, No. 4, January 27, 1927, pp. 160-161. (Abstract by A. H. Wieters.)

This article describes a sewerage system serving Gully Run, a high-class suburban development of Philadelphia. Due to the undesirability of locating a sewage treatment plant in a residential district and to the necessity for a very high degree of purification owing to the fact that this territory is on the drainage area of the Schuylkill River, from which Philadelphia procures part of its water supply, it was decided to pump the sewage into the Philadelphia sewers.

Unusual features involved were the choosing of two 450 g. p. m. horizontal, electrically driven, two stage, automatically controlled, centrifugal pumps; a static head of 186 feet; the construction of a pump station where the ground water level is 9 feet above the pump floor; the successful construction of sewer in a continually wet ditch; the restoration of water to a spring, the supply of which was cut off during sewer construction; and the beautification of the pump house and surrounding grounds.

Stream Pollution—How It Can Be Stopped. C. N. Harrub, Consulting Engineer, Nashville, Tenn. *Water Works Engineering*, Vol. 80, No. 4, February 16, 1927, pp. 215–216. (Abstract by William L. Havens.)

In this article the author emphasizes again the increasing amount of pollution which our water courses are receiving from the admission of both sewage and industrial wastes. The theory of self-purification has been so overworked that many of our streams do not have an opportunity to purify themselves before additional polluting matter is added to the water. Particular emphasis is laid to the problem of acid drainage from coal mines and to the phenol tastes and odors which result from the discharge of industrial wastes into many of our rivers. As a remedy for these conditions it is suggested that everything possible be done to strengthen the State health departments in the work they are doing. In this way we will be in a position not only to preserve our waters in a usable condition but also to avoid the difficult and expensive corrective measures to which some of our States have already been put.

Recent Developments in Mechanical Devices for Sewage Treatment. G. L. Fugate. Proceedings of Eighth Texas Water Works Short School, Texas Section, S. W. Water Works Association, January 18–23, 1926, Fort Worth, Tex., pp. 156–169. (Abstract by G. N. McDaniel, jr.)

Pumping equipment has been the source of trouble at sewage treatment plants as solids cause stoppages and are injurious to rotating parts. Recently a new pump has been developed which will pass large solid bodies without clogging and with a fairly high mechanical efficiency. As an example, an 8-inch pump will pass a 6-inch ball. Improvements have been made on both coarse and fine screens. Coarse screens may be obtained with an automatic device for raking or cleaning. The most advanced type of fine screen consists of a revolving drum covered with perforated plates through which the flow passes. A new method of agitating sewage in the presence of air in the "Activated Sludge Process" is the use of impellers at the surface of the liquid to create a splashing effect. By combining this method with the compressed air method a power saving of two-thirds has been estimated. Solids may be removed from the bottom of a settling tank by slowly revolving arms. An economy in construction results with the use of such equipment. Vacuum filters and dryers are used to remove the moisture sludge.

Stream Pollution by Wastes from By-Products Coke Oven. R. D. Leitch. *Public Health Reports,* Vol. 40, No. 39, September 25, 1925, pp. 2021–2026. (Abstract by E. L. Filby.)

Phenol wastes in a water used for municipal supply may create serious nuisance which may increase as industry does unless preventative measures are taken (which has been done). Nuisance can be prevented. Coke quickening apparently is the best method of disposal of wastes containing phenol. These wastes should not be allowed to enter streams. Benzol scrubbing method is worthy of investigation on practical basis.

Water Purification at Detroit, Mich. George H. Fenkell. *Water Works,* Vol. 66, No. 2, February, 1927, pp. 78–82. (Abstract by M. S. Foreman.)

This article describes some of the past, present, and future conditions in water purification at Detroit, Mich. The water department is considered more and more as a public service utility rather than as a branch of the city government. Better service is demanded by citizens of large cities; and as a result, favorable legislation is passed for the improvement of water supplies.

Changes of water supply at Detroit. The Detroit River has been the source of the city's water supply, and for more than a century it has received but little contamination. Up to the year 1913 untreated Detroit River water was used for the city supply. During the years 1913–1915 calcium hypochlorite was used, and in 1915 chlorine gas was employed to sterilize the water. An experimental filter plant was built in 1920 in order to study taste and odor, due to chlorine, and the elimination of suspended matter.

Conditions at Detroit and Chicago are very similar. The increase in the number of consumers, the hardness, turbidity, and average temperatures of water, the elevation of cities, and the chlorination of the water of the two cities are similar.

General method of filtration. The method is divided into four parts, as folows: A low lift pumping station which will raise the water to above the surface of the ground; a coagulating basin; a number of filter beds; and a clear water basin or reservoir. Between the pumping station and the coagulating basin, chemicals are added. Filtration is accomplished by passing the water through a bed of sand. This process removes about 67.6 per cent of the bacteria that are present. and in conjunction with chlorination a total removal of 98.8 per cent was obtained.

Subjects on which varying opinion is held. There is a considerable difference in time allowed for sedimentation of coagulated water. This process is not very well understood. The area and depth as well as the required capacity for any given case must receive further study. There is also a wide divergence of opinion as to the advisability of covering coagulating basins in northern latitudes. Other problems include the design of settling basins, the size of filter units, and the use of air in washing filters.

The matter of storage. The design of the clear water basin frequently receives too little attention. With an increase of filter capacity of 50 per cent, the storage is reduced to 0.05 day. If the filter capacity were increased to 80 or 90 per cent excess capacity, the use of a clear water basin for equalizing purposes is unnecessary.

Future developments. With the continual demand for better water it seems probable that filters will be installed to remove practically all of the turbidity and plankton. The bacteria requirements have been increased. Chlorine has removed practically all microscopic life. Ultimately a softer water must be furnished. There is also the possibility of dual water mains. Finally, discoveries and improvements through scientific research must be utilized to produce better service or a reduction in charges.

Elimination of Cross Connections Reduces Hazard of Typhoid Fever. Anon. *Water Works Engineering*, Vol. 80, No. 5, March 2, 1927, p. 296. (Abstract by William L. Havens.)

The Kansas State board of health has recently passed a regulation requiring the elimination of by-pass piping around treatment processes in water purification plants and all cross connections between public and private water supplies. Where the private supply is submitted to regular inspection and analysis or, in special cases, where the private supply appears necessary as an emergency protection, cross connections are maintained but will eventually be eliminated. The administration of the regulation in Kansas has resulted in the listing of 138 cross connections, of which 29 have permits based on inspection and satisfactory analysis, 28 have been provided with a double valve and bleeder arrangement, and 37 have been severed.

Have New Methods Improved Water Purification? C. Arthur Brown, Engineering Bureau, Water Purification, American Steel & Wire Co., Chicago, Ill. *Water Works Engineering*, vol. 80, No. 5, March 2, 1927, pp. 273–274 and 312–315. (Abstract by William L. Havens.)

Of the several branches of the art of water purification, many have shown considerable improvement during the past 10 years. In the pumping feature the trend is apparently toward the substitution of electrical power for steam. More and more attention is being given to the use and design of preliminary settling basins and to their arrangement so that various compartments can be used or by-passed, as the necessity demands.

For chemical treatment the present trend is toward measurement and control of flow and toward more complex difficult chemical treatment. The old form of adding alum in the empirical strength solution has been largely supplanted by the newer dry-feed chemical machines and some attention has been given to proportional dry-feed machines which would vary the amount of chemical with the flow of water. Considerable progress has been made in the method of adding lime, since it is now possible to feed and hydrate an ordinary granulated oxide of lime. This new product, known as "pebble lime," is easily granulated and can then be fed from most of the dry-feed devices now on the market. Soda ash was formerly employed as a solution, but it, too, is now being added in dry form by means of the dry-feed machines.

Mixing chambers, which form an almost indispensable part of the modern mechanical filtration plant, are usually either of the "around the end" or the "over and under" type, although some designs are based upon a combination of the two. Still others make use of the hydraulic jump, mechanical agitators, or impeller wheels. Regardless of the type employed, all chemical treatment preceding filtration should be given the water before its exit from the mixing chamber and at a sufficient distance from the exit so that complete and perfect mixing can occur.

It is doubted whether the settling basins of recent design are superior to those designed 10 or more years ago. This seems to be one of the weak points of the modern plant. It is believed that better results would be obtained by the use of shallow basins of careful design than from the unusually deep basins sometimes seen in present construction.

Apparently little progress has been made in the design of the filter itself, and considerable trouble is still experienced from incomplete and imperfect washing. It would appear that a considerable amount of research and experimental work will be required before these troubles can be eliminated, and it will be of great interest to watch the results of the experimental work being carried on at Detroit and Chicago. The equipment for the filter, on the other hand, has shown a marked advance in nearly every particular and is now made of better material

and functions better and more smoothly. Greater attention is also being given to detail and ornamentation of the plant itself and to its surroundings, with the result that modern plants present a better appearance.

Since the early days when only one process was available (the alum was used in connection with the preparation of the water for mechanical filtration), many changes have been made in water treatment. In 1901–2 the first complete water-softening plant was constructed at Oberlin, Ohio. In 1903–4 came the sulphate of iron and lime process, which is still regarded as a standard for the treatment of certain waters. Recarbonating has recently come into use as a means of eliminating incrustations resulting from the softening process. Decarbonating has also been found necessary in many instances in order to prevent corrosion and red water. Double coagulation is also being tried at Cincinnati, with the hope that the amount of chemical required may be reduced. The addition of chlorine has become almost universal, but it is difficult to see how its use can be much more extended.

Ventilation in Relation to Public Health. H. M. Vernon and M. D. Oxon. *Journal of State Medicine*, Vol. 34, No. 12, December, 1926, pp. 683–696. (Abstract by Leonard Greenburg.)

The author of this paper discusses the question of ventilation, with particular reference to health from the point of view of the school, the factory, and the home. In addition to this he includes a discussion of the mortality of coal miners and the question of accidents in relation to atmospheric conditions.

With reference to schools he points out that observations made in 1903 by Kerr at Bradford, England, showed that natural ventilation was inferior to mechanical ventilation. On the other hand, the observations of Kirby and Reed, in Stafford and Derbyshire, produced evidence apparently contrary to this view-point. He discusses in some detail the results obtained by the New York State Commission on Ventilation and cites the well-known finding of the commission that, associated with fan ventilated rooms, there was an excess of 18 per cent absences over that found in window ventilated rooms at 66½° F. He also mentions the results obtained by Louise Tayler-Jones in the schools of Washington, D. C., which showed that the children attending the open-window schools suffered less from absence causing illnesses than did those children in the fan-ventilated rooms.

In connection with factory ventilation the author cites the data which he and Bedford obtained in a rather complete study. This investigation showed that rooms having an average winter temperature of 67° F. had 2.05 per cent of time lost by sickness, whereas rooms kept at 61.7° (average) had only 1.55 per cent of lost time by sickness. In another study in which four groups of women were employed in the sewing of shoes he found that the percentage of time lost due to sickness was lower in the naturally ventilated rooms, 1.9 per cent, as contrasted with 4.5 per cent in the plenum ventilated rooms.

It is rather difficult to give much weight to Doctor Vernon's discussion of mortality; so many factors enter here that the issue is, to say the least, a complex one. He does point out rather clearly, however, that the percentage mortality from bronchitis and pneumonia for Lancashire and certain other deep-working miners is about 39 per cent in excess of that Derbyshire and certain other miners working at lesser depths. He believes that this comparative mortality difference is, in part at least, brought about by the difference in temperature associated with the difference in depth of the mine workings. Doctor Vernon feels that at high temperatures workmen become less alert to danger and cites the evidence of Davies to this effect. He also cites his own data which show that at dry bulb temperatures of 64.6°, 77.3°, nd 81.4° F., respectively, the accident frequency rates were 57 per cent, 80 per cent, and 84 per cent, respectively.

Concerning domestic heating and ventilation he points out the virtues of the chimney as a factor in producing air motion and reiterates the well-known facts concerning the value of the open fireplace as a producer of radiant heat.

Domestic Smoke and Atmospheric Pollution. H. Osborne. *The Medical Officer,* Vol. 36, No. 961, December 25, 1926, pp. 293–295. (Abstract by Leonard Greenburg.)

The only real remedy to the domestic smoke problem in the British Isles is the use of carbonized coal, according to Doctor Osborne. He believes that the restrictions imposed by smoke ordinances are in many places enforced, and in spite of this there is still a very heavy sootfall.

He cites experiments in which ordinary house coal and dry gas coke were burned for a series of 37 days in two grates, the fuels being alternated between the two rooms. The average temperature of the two rooms was maintained very nearly equal (average of 58.9° and 58.6°). The coal consumption averaged 21.8 pounds per day, while the coke consumption was 14.8 pounds per day.

The daily cost of the coal fire was double that of the coke fire, the latter yielding little or no smoke.

POPULATION OF HOSPITALS FOR THE INSANE

Data for October, 1926

Reports for the month of October, 1926, were received from 144 institutions for the care of the insane.

There was an increase in the number of patients during the month of 362, or 0.18 per cent. The number in the hospitals increased 0.02 per cent, and the number on parole or otherwise absent from the institutions increased 2.05 per cent.

First admissions constituted 77.01 per cent of the total admitted during the month; readmissions, 16 per cent, and 6.99 per cent of the total admitted were transfers or not accounted for.

Of the patients discharged, 25.53 per cent were recorded as recovered; 50.82 as improved; 16.19 per cent as unimproved; 4.76 per cent as without psychosis; and 2.70 per cent as otherwise discharged or not accounted for.

There were 1,062 male patients per thousand females at the close of the month.

The patients on parole on October 31 constituted 7.81 per cent of the total.

During October there were 1,566 deaths of patients of the hospitals reporting, which gives an annual death rate of 88.80 per thousand under treatment.

Movement of patient population in 144 hospitals for the care of the insane during October, 1926

Number of institutions included:	
Public	109
Private	35
Total	144
Patients on books October 1, 1926:	
In hospitals	187, 630
On parole or otherwise absent, but still on books	15, 579
Total	203, 209
Admitted during October:	
First admissions	3, 413
Readmissions	709
Admitted by transfer	307
Not accounted for	3
Total received during the month	4, 432
Total on books during the month	207, 641
Discharged during October:	
As recovered	558
As improved	1, 111
As unimproved	354
As without psychosis	104
Not accounted for	1
Otherwise discharged	58
Total discharged during October	2, 186
Transferred	318
Died	1, 566
Total discharged, transferred and died during October	4, 070
Patients on books October 31, 1926:	
In hospitals	187, 673
On parole	15, 898
Total	203, 571
Male patients	104, 855
Female patients	98, 716

DEATHS DURING WEEK ENDED APRIL 9, 1927

Summary of information received by telegraph from industrial insurance companies for week ended April 9, 1927, and corresponding week of 1926. (From the Weekly Health Index, April 14, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 9, 1927	Corresponding week, 1926
Policies in force	67, 271, 091	63, 969, 770
Number of death claims	13, 077	17, 105
Death claims per 1,000 policies in force, annual rate	10. 1	13. 9

Deaths from all causes in certain large cities of the United States during the week ended April 9, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 14, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 9, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 9, 1927[2]
	Total deaths	Death rate[1]		Week ended Apr. 9, 1927	Corresponding week, 1926	
Total (68 cities)	7,806	13.7	[3] 17.1	872	[3] 1,127	[4] 71
Akron	36			5	15	54
Albany [5]	38	16.5	24.1	4	3	83
Atlanta	72			8	12	
White	34			3	4	
Colored	38	(6)		5	8	
Baltimore [5]	244	15.5	17.0	28	28	87
White	178		15.4	20	18	77
Colored	66	(6)	26.3	8	10	124
Birmingham	73	17.7	21.7	13	13	
White	32		15.9	4	5	
Colored	41	(6)	30.8	9	8	
Boston	252	16.6	20.1	30	33	84
Bridgeport	34			4	6	74
Buffalo	144	13.7	20.3	17	34	71
Cambridge	32	13.5	18.8	2	6	36
Camden	30	11.8	13.1	3	3	52
Canton	22	10.2	11.4	3	7	71
Chicago [5]	730	12.3	14.0	87	07	75
Cincinnati	131	16.6	26.0	14	13	87
Cleveland	204	10.8	15.8	28	35	74
Columbus	83	14.9	18.7	2	3	19
Dallas	56	14.0	12.6	8	8	
White	49		11.9	8	8	
Colored	7	(6)	17.4	0	0	
Dayton	54	15.6	9.7	2	3	33
Denver	97	17.4	13.5	8	11	
Des Moines	36	12.6	12.9	4	1	67
Detroit	279	10.9	18.2	50	103	79
Duluth	25	11.3	8.3	0	4	0
El Paso	37	16.9	15.3	9	6	
Erie	24			3	3	59
Fall River [5]	29	11.4	20.7	4	5	71
Flint	29	10.6	13.4	10	3	163
Fort Worth	44	14.0	7.5	3	1	
White	32		7.8	1	1	
Colored	12	(6)	5.5	2	0	
Grand Rapids	36	11.8	17.7	6	11	88
Houston	58			5	3	
White	35			4	2	
Colored	23	(6)		1	1	
Indianapolis	109	15.2	17.5	11	11	86
White	92		16.8	8	11	72
Colored	17	(6)	22.5	3	0	183
Jersey City	71	11.5	16.6	12	13	00
Kansas City, Kans.	34	15.2	16.9	4	4	78
White	24		15.7	3	4	67
Colored	10	(6)	22.9	1	0	152
Kansas City, Mo.	116	15.8	17.9	10	13	
Knoxville	39	19.9		5		
White	31			5		
Colored	8	(6)		0		
Los Angeles	256			16	22	46
Louisville	95	15.5	22.0	3	17	26
White	75		20.3	3	14	29
Colored	20	(6)	31.1	0	3	0
Lowell	33	15.6	20.8	5	8	96
Lynn	22	10.9	14.0	4	2	106
Memphis	67	19.5	25.0	4	10	
White	36		18.8	2	3	
Colored	31	(6)	36.4	2	7	

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 63 cities.
[5] Deaths for week ended Friday, Apr. 8, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 9, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 14, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Apr. 9, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 9, 1927
	Total deaths	Death rate		Week ended Apr. 9, 1927	Corresponding week, 1926	
Milwaukee	100	9.9	16.2	18	28	84
Minneapolis	107	12.6	15.0	9	11	51
Nashville [5]	48	18.1	22.8	6	8	----------
White	28	----------	17.6	3	3	----------
Colored	20	(6)	36.1	3	5	----------
New Bedford	25	10.9	20.5	3	14	52
New Haven	51	14.4	11.5	3	1	42
New Orleans	153	18.8	19.2	26	17	----------
White	80	----------	14.5	13	8	----------
Colored	73	(6)	32.5	13	9	----------
New York	1,621	14.2	17.0	175	229	72
Bronx Borough	210	11.8	13.6	19	25	61
Brooklyn Borough	542	12.4	15.4	68	80	70
Manhattan Borough	668	19.2	22.9	73	94	86
Queens Borough	153	9.9	11.1	13	23	56
Richmond Borough	48	17.0	18.6	2	7	37
Newark, N. J	114	12.8	18.9	11	16	54
Norfolk	29	8.4	9.6	2	0	40
White	21	----------	7.0	2	0	65
Colored	8	(6)	14.1	0	0	0
Oakland	48	9.4	10.4	5	6	59
Oklahoma City	40	----------	----------	4	4	----------
Omaha	81	19.3	16.2	10	6	111
Paterson	26	9.4	19.0	2	7	35
Philadelphia	573	14.7	17.7	53	85	71
Pittsburgh	200	16.2	24.4	28	30	98
Portland, Oreg	67	----------	----------	5	7	53
Providence	68	12.6	19.7	6	9	51
Richmond	56	15.2	19.3	7	4	92
White	33	----------	14.8	4	1	81
Colored	23	(5)	30.3	3	3	114
Rochester	81	13.0	16.2	6	11	50
St. Louis	229	14.2	18.5	9	28	----------
St. Paul	61	12.7	14.5	6	5	55
Salt Lake City [5]	35	13.4	17.3	2	2	30
San Antonio	63	15.6	16.8	8	6	----------
San Diego	32	14.5	16.6	2	4	43
San Francisco	162	14.7	17.0	5	7	31
Schenectady	21	11.8	18.5	3	3	90
Seattle	74	----------	----------	1	9	10
Somerville	18	9.2	14.6	4	2	144
Spokane	26	12.4	10.0	0	1	0
Springfield, Mass	31	11.0	17.6	6	8	92
Syracuse	50	13.2	12.7	6	6	77
Tacoma	26	12.7	12.8	2	2	47
Toledo	80	13.7	18.0	5	11	48
Trenton	37	14.1	22.2	7	8	122
Washington, D. C	128	12.4	15.5	16	21	93
White	76	----------	13.2	10	10	84
Colored	52	(6)	22.2	6	11	110
Waterbury	22	----------	----------	3	5	71
Wilmington, Del	16	6.6	16.4	3	3	74
Worcester	60	16.0	24.3	7	6	84
Yonkers	26	11.4	13.0	7	5	159
Youngstown	33	10.2	15.8	11	8	154

[5] Deaths for week ended Friday, Apr. 8, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended April 16, 1927

ARIZONA	Cases
Chicken pox	58
Diphtheria	4
German measles	118
Influenza	3
Malta fever	1
Measles	153
Mumps	17
Pneumonia	1
Poliomyelitis	1
Scarlet fever	50
Smallpox	4
Trachoma	2
Tuberculosis	9
Typhoid fever	1
Whooping cough	9

ARKANSAS	
Chicken pox	17
Diphtheria	2
Influenza	42
Malaria	12
Measles	208
Mumps	11
Pellagra	5
Scarlet fever	2
Smallpox	2
Tuberculosis	4
Typhoid fever	2
Whooping cough	42

COLORADO	
Chicken pox	28
Diphtheria	8
German measles	18
Influenza	1
Measles	177
Mumps	7
Pneumonia	8

COLORADO—continued	Cases
Scarlet fever	143
Smallpox	10
Tuberculosis	16
Typhoid fever	1
Whooping cough	6

CONNECTICUT	
Cerebrospinal meningitis	1
Chicken pox	44
Conjunctivitis (infectious)	7
Diphtheria	21
German measles	10
Influenza	6
Lethargic encephalitis	1
Measles	77
Mumps	28
Paratyphoid fever	1
Pneumonia (broncho)	33
Pneumonia (lobar)	51
Scarlet fever	85
Septic sore throat	4
Tuberculosis (all forms)	31
Typhoid fever	1
Whooping cough	26

DELAWARE	
Chicken pox	2
Measles	19
Mumps	1
Pneumonia	4
Scarlet fever	12
Tuberculosis	4

FLORIDA	
Cerebrospinal meningitis	1
Chicken pox	43
Dengue	1
Diphtheria	33

FLORIDA—continued	Cases
Influenza	5
Lethargic encephalitis	1
Measles	192
Mumps	16
Pneumonia	10
Scarlet fever	24
Smallpox	50
Tetanus	15
Typhoid fever	22
Whooping cough	25

IDAHO	
Cerebrospinal meningitis—Idaho Falls	2
Chicken pox	4
Diphtheria	4
Measles	74
Mumps	2
Scarlet fever	13
Tuberculosis	1
Typhoid fever	1

ILLINOIS	
Cerebrospinal meningitis—Cook County	3
Chicken pox	304
Diphtheria	108
Influenza	27
Lethargic encephalitis:	
Cook County	2
Stephenson County	1
Measles	1,991
Mumps	601
Pneumonia	304
Poliomyelitis—Franklin County	1
Scarlet fever	288
Smallpox	30
Tuberculosis	212
Typhoid fever	8
Whooping cough	159

KANSAS	
Cerebrospinal meningitis:	
Jetmore	1
Topeka	1
Chicken pox	112
Diphtheria	9
German measles	16
Influenza	4
Measles	1,147
Mumps	78
Pneumonia	31
Scarlet fever	105
Smallpox	9
Tuberculosis	39
Typhoid fever	2
Vincent's angina	2
Whooping cough	57

LOUISIANA	
Cerebrospinal meningitis	1
Diphtheria	27
Influenza	7
Malaria	8
Measles	100
Pneumonia	18
Scarlet fever	6

LOUISIANA—continued	Cases
Smallpox	3
Tuberculosis	35
Typhoid fever	17
Whooping cough	15

MAINE	
Chicken pox	18
Diphtheria	4
German measles	55
Influenza	68
Measles	113
Mumps	11
Pneumonia	18
Scarlet fever	17
Tuberculosis	7
Typhoid fever	2
Whooping cough	33

MARYLAND [1]	
Chicken pox	95
Diphtheria	40
Dysentery	1
Influenza	55
Malaria	1
Measles	37
Mumps	22
Ophthalmia neonatorum	2
Paratyphoid fever	1
Pneumonia (broncho)	45
Pneumonia (lobar)	32
Scarlet fever	73
Septic sore throat	1
Tetanus	3
Tuberculosis	115
Typhoid fever	9
Vincent's angina	1
Whooping cough	94

MASSACHUSETTS	
Cerebrospinal meningitis	2
Chicken pox	258
Conjunctivitis (suppurative)	6
Diphtheria	97
German measles	27
Influenza	16
Lethargic encephalitis	1
Measles	368
Mumps	426
Ophthalmia neonatorum	39
Pneumonia (lobar)	113
Poliomyelitis	1
Scarlet fever	494
Septic sore throat	2
Tuberculosis (pulmonary)	87
Tuberculosis (other forms)	24
Typhoid fever	7
Whooping cough	134

MICHIGAN	
Diphtheria	93
Measles	194
Pneumonia	227
Scarlet fever	256
Smallpox	19
Tuberculosis	147
Typhoid fever	6
Whooping cough	146

[1] Week ended Friday.

MONTANA

	Cases
Cerebrospinal meningitis	4
Chicken pox	56
Diphtheria	6
German measles	2
Measles	54
Mumps	7
Rocky Mountain spotted fever	1
Scarlet fever	63
Smallpox	12
Tuberculosis	5
Typhoid fever	1
Whooping cough	5

NEW JERSEY

	Cases
Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	293
Diphtheria	113
Influenza	21
Measles	78
Pneumonia	146
Poliomyelitis	1
Scarlet fever	306
Typhoid fever	4
Whooping cough	217

NEW MEXICO

	Cases
Chicken pox	16
Conjunctivitis	2
Diphtheria	3
German measles	55
Measles	122
Mumps	36
Pellagra	1
Pneumonia	9
Rabies (in animals)	1
Scarlet fever	16
Smallpox	1
Trachoma	3
Tuberculosis	24
Whooping cough	20

NEW YORK

(Exclusive of New York City)

	Cases
Chicken pox	349
Diphtheria	83
German measles	286
Lethargic encephalitis	1
Measles	743
Mumps	387
Pneumonia	278
Poliomyelitis	1
Scarlet fever	265
Septic sore throat	3
Smallpox	7
Typhoid fever	7
Vincent's angina	22
Whooping cough	179

NORTH CAROLINA

	Cases
Chicken pox	118
Diphtheria	23
German measles	12
Measles	920
Ophthalmia neonatorum	1
Scarlet fever	14
Smallpox	33
Typhoid fever	1
Whooping cough	788

[1] Deaths.

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	25
Diphtheria	13
Influenza	53
Measles	217
Mumps	7
Pneumonia	[1] 3
Rocky Mountain spotted fever	3
Scarlet fever	12
Septic sore throat	1
Smallpox	15
Tuberculosis	26
Typhoid fever	4
Whooping cough	7

UTAH

	Cases
Chicken pox	27
Diphtheria	7
German measles	13
Measles	66
Mumps	3
Pneumonia	9
Scarlet fever	32
Smallpox	3
Whooping cough	32

VERMONT

	Cases
Chicken pox	8
Measles	117
Mumps	66
Scarlet fever	8
Whooping cough	31

VIRGINIA

	Cases
Smallpox—Scott County	15

WASHINGTON

	Cases
Cerebrospinal meningitis:	
Asotin County	1
Bellingham	1
Chelan County	1
Clarke County	1
Seattle	1
Chicken pox	107
Diphtheria	14
German measles	373
Measles	431
Mumps	109
Pneumonia	5
Poliomyelitis	1
Scarlet fever	64
Smallpox	33
Tuberculosis	15
Typhoid fever	10
Whooping cough	37

WEST VIRGINIA

	Cases
Chicken pox	55
Diphtheria	17
Influenza	47
Measles	151
Scarlet fever	53
Smallpox	49
Tuberculosis	21
Typhoid fever	4
Whooping cough	85

Reports for Week Ended April 9, 1927

DISTRICT OF COLUMBIA	Cases
Chicken pox	34
Diphtheria	10
Influenza	2
Measles	5
Pneumonia	23
Scarlet fever	29
Tuberculosis	22
Whooping cough	14
NORTH DAKOTA	
Chicken pox	21
Diphtheria	2

NORTH DAKOTA—continued	Cases
German measles	2
Measles	145
Mumps	3
Pneumonia	7
Poliomyelitis	2
Scarlet fever	72
Smallpox	7
Tuberculosis	3
Typhoid fever	2
Whooping cough	4

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March, 1927										
District of Columbia	0	117	48		22		0	111	0	6
Massachusetts	6	428	89		1,297	1	3	2,517	0	44
Vermont	0	8			528		0	60	0	

March, 1927	Cases
Chicken pox:	
District of Columbia	313
Massachusetts	1,167
Vermont	117
German measles:	
Massachusetts	68
Vermont	60
Lead poisoning:	
Massachusetts	7
Lethargic encephalitis:	
Massachusetts	15
Mumps:	
Massachusetts	2,027
Vermont	317
Ophthalmia neonatorum:	
Massachusetts	220

March, 1927—Continued	Cases
Rabies in animals:	
District of Columbia	2
Vermont	4
Septic sore throat:	
Massachusetts	10
Tetanus:	
Massachusetts	1
Trachoma:	
Massachusetts	2
Whooping cough:	
District of Columbia	71
Massachusetts	760
Vermont	96

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 30,600,000. The estimated population of the 93 cities reporting deaths is more than 30,000,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 2, 1927, and April 3, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,801	1,281	
98 cities	1,129	753	895
Measles:			
41 States	16,149	19,851	
98 cities	4,620	9,862	
Poliomyelitis:			
42 States	11	15	
Scarlet fever:			
41 States	6,140	4,307	
98 cities	2,596	1,717	1,260
Smallpox:			
42 States	1,094	865	
98 cities	165	243	140
Typhoid fever:			
41 States	217	165	
98 cities	47	58	43
Deaths reported			
Influenza and pneumonia:			
93 cities	1,071	2,406	
Smallpox:			
93 cities	0	10	
Los Angeles	0	10	

City reports for week ended April 2, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	5	1	0	0	0	0	1	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	6	0	1
Manchester	83,097	0	2	0	0	0	0	0	3
Vermont:									
Barre	10,008	0	0	0	0	0	0	3	1
Burlington	24,089	0	0	2	0	0	6	1	1
Massachusetts:									
Boston	779,620	55	57	25	8	2	71	104	32
Fall River	128,993	4	3	4	0	0	1	4	2
Springfield	142,065	5	3	6	0	1	1	4	0
Worcester	190,757	12	5	3	0	0	0	26	5
Rhode Island:									
Pawtucket	69,760	7	1	1	0	0	1	0	1
Providence	267,918	0	8	10	0	1	1	0	5
Connecticut:									
Bridgeport	(1)	0	6	8	0	1	6	5	5
Hartford	160,197	0	7	2	0	0	0	3	5
New Haven	178,927	14	3	0	0	0	1	5	0

1 No estimate made.

City reports for week ended April 2, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	16	10	8	--------	2	10	11	17
New York	5,873,356	305	214	423	51	20	42	496	226
Rochester	316,786	6	10	13	--------	2	9	1	14
Syracuse	182,003	9	6	5	--------	0	75	8	3
New Jersey:									
Camden	128,642	6	4	9	2	1	1	0	2
Newark	452,513	83	17	4	8	0	2	70	16
Trenton	132,020	6	4	3	3	0	0	1	2
Pennsylvania:									
Philadelphia	1,979,364	115	73	55	--------	14	26	188	67
Pittsburgh	631,563	55	18	15	--------	3	90	8	27
Reading	112,707	9	3	0	--------	0	4	46	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	14	8	8	0	3	2	12	13
Cleveland	936,485	102	23	41	7	3	5	41	19
Columbus	279,836	11	3	3	0	1	2	0	9
Toledo	287,380	25	4	2	1	0	21	11	7
Indiana:									
Fort Wayne	97,846	8	2	1	33	0	0	0	3
Indianapolis	358,819	69	7	5	0	2	15	20	11
South Bend	80,091	0	1	0	0	0	19	0	3
Terre Haute	71,071	2	1	0	0	0	17	0	4
Illinois:									
Chicago	2,995,239	93	80	91	23	7	1,037	193	86
Peoria	81,564	6	1	0	0	0	6	5	6
Springfield	63,923	10	1	2	0	0	31	0	3
Michigan:									
Detroit	1,245,824	83	51	72	3	4	30	161	39
Flint	130,316	24	4	1	0	1	8	2	10
Grand Rapids	153,698	4	3	1	0	0	1	1	1
Wisconsin:									
Kenosha	50,891	5	1	0	1	1	72	41	0
Madison	46,385	--------	1	--------	--------	--------	--------	--------	--------
Milwaukee	509,192	105	15	12	0	0	129	105	18
Racine	67,707	7	2	1	0	0	17	39	0
Superior	39,671	0	0	0	0	0	2	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	10	1	0	0	0	39	0	0
Minneapolis	425,435	76	15	22	0	0	7	3	13
St. Paul	246,001	29	15	3	0	1	14	2	13
Iowa:									
Davenport	52,469	0	0	0	0	--------	3	7	--------
Sioux City	76,411	10	1	1	0	--------	66	7	--------
Waterloo	36,771	4	0	1	0	--------	86	0	--------
Missouri:									
Kansas City	367,481	28	6	3	0	1	72	1	14
St. Joseph	78,342	3	1	0	0	0	31	0	2
St. Louis	821,543	29	37	45	0	0	47	56	--------
North Dakota:									
Fargo	26,403	12	1	0	0	0	171	16	0
Grand Forks	14,811	0	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15,036	3	0	0	0	--------	126	0	--------
Sioux Falls	30,127	0	0	0	0	--------	9	0	--------
Nebraska:									
Lincoln	60,941	4	1	1	0	0	80	15	0
Omaha	211,768	10	3	3	0	0	120	28	1
Kansas:									
Topeka	55,411	11	1	1	0	0	97	2	2
Wichita	88,367	15	1	1	0	0	35	0	0

City reports for week ended April 2, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	2	2	1	0	0	0	0	4
Maryland:									
Baltimore	796,296	117	26	58	60	9	5	9	36
Cumberland	33,741	0	1	0	1	0	2	0	4
Frederick	12,035	0	0	0	0	0	0	0	1
District of Columbia:									
Washington	497,906	70	10	13	1	3	4	0	15
Virginia:									
Lynchburg	30,395	19	0	2	0	0	34	0	6
Norfolk	(1)	------	0	------	------	------	------	------	------
Richmond	186,403	2	2	4	0	2	164	15	7
Roanoke	58,208	2	0	0	0	1	6	0	5
West Virginia:									
Charleston	49,019	6	0	4	1	0	1	0	0
Wheeling	56,208	3	1	1	0	0	17	0	5
North Carolina:									
Raleigh	30,371	6	0	0	0	0	12	0	4
Wilmington	37,061	0	0	0	0	1	1	13	3
Winston-Salem	69,031	12	0	0	0	3	4	24	5
South Carolina:									
Charleston	73,125	1	0	0	56	0	27	1	3
Columbia	41,225	------	0	------	------	------	------	------	------
Greenville	27,311	0	0	0	0	0	0	0	2
Georgia:									
Atlanta	(1)	5	2	0	27	1	36	8	11
Brunswick	16,809	1	0	0	0	0	2	15	0
Savannah	93,134	1	1	0	45	0	3	0	4
Florida:									
Miami	69,754	21	3	4	0	0	8	8	1
St. Petersburg	26,847	------	0	------	------	0	------	------	0
Tampa	94,743	3	1	2	0	0	132	0	3
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	0	1	0	0	0	0	2
Louisville	305,935	9	5	2	3	0	1	1	5
Tennessee:									
Memphis	174,533	14	5	0	------	11	1	0	7
Nashville	136,220	5	0	1	------	4	0	1	4
Alabama:									
Birmingham	205,670	2	2	7	46	4	20	3	7
Mobile	65,955	0	1	0	0	1	16	0	0
Montgomery	46,481	28	0	1	2	0	18	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	0	0	0	------	70	6	1
Little Rock	74,216	10	1	1	1	2	9	0	2
Louisiana:									
New Orleans	414,493	0	7	24	1	2	43	0	20
Shreveport	57,857	3	0	0	0	0	7	13	1
Oklahoma:									
Oklahoma City	(1)	------	1	------	------	0	------	------	6
Texas:									
Dallas	194,450	15	4	4	1	1	96	3	5
Galveston	48,375	0	0	0	0	0	0	0	1
Houston	164,954	4	2	9	0	0	1	0	2
San Antonio	198,069	1	1	5	0	2	0	0	6
MOUNTAIN									
Montana:									
Billings	17,971	3	0	0	0	1	1	0	1
Great Falls	29,883	8	0	0	0	0	5	0	3
Helena	12,037	1	0	0	0	0	0	0	0
Missoula	12,668	0	0	0	0	0	0	14	1
Idaho:									
Boise	23,042	0	0	2	0	0	4	0	0

[1] No estimate made.

City reports for week ended April 2, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
Colorado:									
Denver	280,911	13	9	5	--------	2	326	6	8
Pueblo	43,787	16	1	1	0	0	31	2	1
New Mexico:									
Albuquerque	21,000	0	1	0	0	0	7	33	0
Utah:									
Salt Lake City	130,948	20	3	4	4	0	15	0	4
Nevada:									
Reno	12,665	0	0	0	0	0	2	2	0
PACIFIC									
Washington:									
Seattle	(1)	61	5	8	0	--------	41	76	--------
Spokane	108,897	6	2	0	0	--------	16	0	--------
Tacoma	104,455	32	1	2	0	0	44	0	4
Oregon:									
Portland	282,383	7	6	5	1	2	149	8	1
California:									
Los Angeles	(1)	46	42	45	39	3	804	14	25
Sacramento	72,260	0	1	2	2	2	15	13	3
San Francisco	557,530	56	21	8	9	2	137	106	5

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	4	1	0	1	0	1	0	0	0	4	18
New Hampshire:											
Concord	0	6	0	0	0	0	0	0	0	0	7
Manchester	3	0	0	0	0	0	0	0	0	0	19
Vermont:											
Barre	0	0	0	0	0	1	0	1	1	0	5
Burlington	1	7	0	0	0	0	0	0	0	1	7
Massachusetts:											
Boston	72	151	0	0	0	17	1	3	0	19	236
Fall River	4	6	0	0	0	2	0	1	0	10	23
Springfield	5	6	0	0	0	1	0	0	0	9	41
Worcester	9	7	0	0	0	3	0	0	0	6	45
Rhode Island:											
Pawtucket	2	1	0	0	0	0	0	0	0	2	24
Providence	8	14	0	0	0	4	0	0	0	0	74
Connecticut:											
Bridgeport	11	14	0	0	0	2	0	0	0	0	31
Hartford	5	11	0	0	0	0	0	0	0	3	19
New Haven	11	4	0	0	0	1	1	0	0	1	54
MIDDLE ATLANTIC											
New York:											
Buffalo	21	29	0	0	0	3	0	0	0	21	140
New York	264	949	1	1	0	[2] 114	8	12	0	107	1,535
Rochester	16	18	0	0	0	2	0	0	0	6	86
Syracuse	13	8	0	0	0	0	0	0	0	2	45
New Jersey:											
Camden	5	9	1	0	0	0	1	0	0	1	34
Newark	26	50	0	0	0	9	0	0	0	38	136
Trenton	4	2	0	0	0	2	1	0	0	3	38
Pennsylvania:											
Philadelphia	80	157	0	0	0	42	3	0	1	38	564
Pittsburgh	29	17	1	0	0	11	1	0	0	7	200
Reading	4	5	0	0	0	3	0	0	0	3	24

[1] No estimate made.

[2] Pulmonary tuberculosis only.

City reports for week ended April 2, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	45	2	1	0	12	0	0	0	0	141
Cleveland	37	34	1	0	0	23	1	0	0	23	208
Columbus	13	8	2	1	0	7	0	0	0	5	67
Toledo	15	10	4	0	0	10	1	0	0	19	85
Indiana:											
Fort Wayne	5	12	2	5	0	1	0	0	0	1	23
Indianapolis	10	16	9	39	0	7	1	0	0	24	89
South Bend	3	4	1	2	0	2	0	0	0	0	23
Terre Haute	2	3	1	0	0	0	0	0	0	5	17
Illinois:											
Chicago	119	141	3	0	0	43	2	1	0	62	779
Peoria	3	0	1	0	0	0	0	0	0	7	24
Springfield	2	6	1	0	0	0	0	0	0	0	17
Michigan:											
Detroit	88	109	2	1	0	17	1	0	0	59	304
Flint	6	32	1	1	0	2	0	0	0	3	41
Grand Rapids	8	15	1	0	0	3	0	0	0	3	33
Wisconsin:											
Kenosha	3	14	0	0	0	1	0	0	0	3	8
Madison	4		0				0				
Milwaukee	27	44	3	0	0	9	0	0	0	38	128
Racine	4	5	0	0	0	1	0	0	0	3	18
Superior	3	6	3	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	8	1	0	0	4	0	0	0	0	15
Minneapolis	39	77	7	0	0	9	1	0	0	0	103
St. Paul	33	43	6	0	0	12	1	0	0	3	80
Iowa:											
Davenport	2	4	2	0			0	0		0	
Sioux City	2	5	1	2			0	0		3	
Waterloo	2	2	0	0			0	0		1	
Missouri:											
Kansas City	11	17	2	7	0	11	0	1	0	8	121
St. Joseph	2	13	0	1	0	1	0	0	0	1	18
St. Louis	34	46	4	1	0	12	2	0	0	32	225
North Dakota:											
Fargo	2	0	0	0	0	0	0	0	0	0	14
Grand Forks	1	8	0	0			0	1		0	
South Dakota:											
Aberdeen	3	1	0	0			0	0		0	
Sioux Falls	2	1	0	0			0	0		0	
Nebraska:											
Lincoln	3	3	1	1	0	0	0	0	0	5	16
Omaha	3	17	9	3	0	1	1	0	0	1	54
Kansas:											
Topeka	3	1	1	1	0	2	0	0	0	11	15
Wichita	2	7	3	0	0	4	0	0	0	5	31
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	18	0	0	0	1	1	0	0	3	
Maryland:											
Baltimore	36	30	1	0	0	20	2	4	0	46	229
Cumberland	1	0	0	0	0	2	0	0	0	0	16
Frederick	1	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	25	31	2	0	0	13	1	2	0	11	151
Virginia:											
Lynchburg	1	0	0	0	0	0	0	0	0	0	15
Norfolk	1		0				0				
Richmond	2	4	0	0	0	3	0	0	0	3	47
Roanoke	1	3	1	8	0	2	0	0	0	2	22
West Virginia:											
Charleston	1	2	0	3	0	3	1	0	0	3	17
Wheeling	2	5	0	0	0	2	1	0	0	5	19
North Carolina:											
Raleigh	1	1	0	0	0	0	0	0	0	30	10
Wilmington	0	0	0	0	0	1	0	0	0	19	12
Winston-Salem	0	2	5	1	0	1	0	0	0	57	26

City reports for week ended April 2, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston	0	0	0	0	0	4	0	2	0	0	30
Columbia	0	------	1	------	------	------	0	------	------	------	------
Greenville	0	0	2	0	0	1	0	0	0	0	6
Georgia:											
Atlanta	4	6	3	14	0	6	0	0	1	5	70
Brunswick	0	0	0	0	0	0	0	0	0	0	3
Savannah	0	0	0	3	0	2	1	0	0	1	26
Florida:											
Miami	2	1	------	0	0	3	1	0	0	16	41
St. Petersburg	1	------	1	------	0	0	0	------	0	------	20
Tampa	0	1	0	3	0	2	1	1	0	0	26
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	1	0	0	0	1	1	0	0	0	17
Louisville	5	2	1	2	0	8	1	2	0	39	68
Tennessee:											
Memphis	4	21	4	13	0	7	0	0	0	32	76
Nashville	2	5	2	0	0	2	0	1	0	6	48
Alabama:											
Birmingham	1	5	9	6	0	6	1	0	1	15	60
Mobile	0	0	1	0	0	0	0	1	0	0	18
Montgomery	0	0	1	3	0	0	0	0	0	9	------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	------	------	0	0	1	16	13
Little Rock	1	1	1	1	0	4	0	0	0	0	------
Louisiana:											
New Orleans	6	3	3	1	0	14	2	5	2	6	153
Shreveport	0	0	1	0	0	3	0	0	0	1	21
Oklahoma:											
Oklahoma City	2	------	3	------	0	1	0	------	0	------	32
Texas:											
Dallas	2	4	4	11	0	3	0	0	0	9	47
Galveston	1	0	0	0	0	2	0	0	0	0	16
Houston	1	3	1	2	0	4	0	1	0	2	77
San Antonio	1	2	0	0	0	3	0	0	0	0	55
MOUNTAIN											
Montana:											
Billings	1	2	0	0	0	0	0	0	0	0	2
Great Falls	1	7	1	1	0	1	0	0	0	0	9
Helena	1	0	0	0	0	0	0	0	0	0	4
Missoula	0	8	1	0	0	0	0	0	0	0	5
Idaho:											
Boise	1	3	1	0	0	0	0	0	0	0	7
Colorado:											
Denver	13	84	3	0	0	6	0	0	0	1	75
Pueblo	1	12	0	0	0	0	0	0	0	0	10
New Mexico:											
Albuquerque	0	0	0	0	0	7	0	0	0	0	12
Utah:											
Salt Lake City	2	17	1	0	0	0	0	0	0	22	27
Nevada:											
Reno	1	2	1	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	9	16	3	0	------	------	0	2	------	41	------
Spokane	5	27	5	6	------	------	0	0	------	6	------
Tacoma	2	5	3	19	0	1	0	3	0	3	20
Oregon:											
Portland	7	8	6	1	0	3	0	0	0	6	76
California:											
Los Angeles	24	42	5	0	0	33	1	2	0	26	243
Sacramento	2	0	1	0	0	2	1	1	0	2	22
San Francisco	15	40	4	1	0	13	2	1	0	32	158

City reports for week ended April 2, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Vermont:									
Burlington	0	0	0	0	0	1	0	0	0
Massachusetts:									
Boston	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	1	0	0	0	0	0	0	0
New York	6	2	0	2	0	0	1	0	0
Pennsylvania:									
Pittsburgh	2	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL [3]									
Illinois:									
Chicago	1	3	1	0	0	0	1	0	0
Michigan:									
Detroit	3	1	2	0	0	0	0	0	0
Wisconsin:									
Milwaukee	8	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
St. Paul	1	0	0	0	0	0	0	0	0
Missouri:									
St. Louis	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	1	0	0	1	0	0	0	0
South Carolina:									
Charleston	0	0	0	1	4	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	1	0	0	0	0	0	0	0
Nashville	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	1	0	0	0
Mobile	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	2	2	0	0	0
Shreveport	0	0	0	0	0	2	0	0	0
Texas:									
Dallas	0	0	0	0	3	2	0	0	0
Houston	0	0	0	0	0	2	0	0	0
San Antonio	0	0	0	1	0	0	0	0	0
MOUNTAIN									
Montana:									
Great Falls	0	1	0	0	0	0	0	0	0
Missoula	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	2	1	0	0	0	0	0	0	0
Pueblo	2	0	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	0	1	0	0	0	0	0	0	0
Sacramento	1	0	0	0	0	0	0	0	0
San Francisco	4	1	2	1	0	0	0	1	0

[3] Rabies (human): 1 death at Toledo, Ohio.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 2, 1927, compared with those for a like period ended April 3, 1926. The population figures used in computing the rates are approximate estimates as of July 1,

1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, February 27 to April 2, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
101 cities	[2] 124	182	[3] 114	[3] 184	120	[4] 171	[5] 131	[4] 179	[3] 126	[6] 192
New England	94	163	78	128	127	137	139	130	80	137
Middle Atlantic	111	224	113	231	126	225	142	227	146	264
East North Central	123	177	[3] 107	[3] 166	98	157	102	179	[3] 113	[3] 160
West North Central	[2] 241	115	216	133	147	127	149	121	159	159
South Atlantic	108	196	86	156	69	[4] 149	[5] 62	[4] 151	95	[4] 167
East South Central	47	82	26	112	26	31	36	41	57	61
West South Central	103	151	103	193	103	164	155	176	60	180
Mountain	73	234	109	198	73	126	255	81	146	108
Pacific	188	134	147	199	281	165	238	194	201	170

MEASLES CASE RATES

	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
101 cities	[2] 1,884	858	[3] 1,686	[3] 942	1,783	[4] 906	[5] 1,834	[4] 920	[3] 1,693	[6] 785
New England	2,441	172	1,964	197	1,722	211	1,344	197	1,460	204
Middle Atlantic	1,843	68	1,716	80	1,858	93	1,839	114	1,850	128
East North Central	2,695	1,078	[3] 2,135	[3] 1,104	1,994	1,160	2,091	1,092	[3] 1,504	[3] 884
West North Central	[2] 842	955	1,603	1,245	1,892	1,564	2,323	1,519	2,428	1,558
South Atlantic	2,675	797	2,248	786	2,772	[4] 942	[5] 2,731	[4] 828	2,649	[4] 883
East South Central	1,319	540	1,407	459	2,260	443	2,906	438	2,875	285
West South Central	17	730	39	1,204	43	1,040	125	1,778	43	948
Mountain	210	8,154	337	9,116	328	5,412	310	5,088	556	3,452
Pacific	276	3,037	324	3,259	319	2,930	450	3,170	246	2,767

SCARLET FEVER CASE RATES

	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
101 cities	[2] 289	419	[3] 303	[3] 446	300	[4] 436	[5] 324	[4] 427	[3] 296	[6] 441
New England	347	423	333	590	403	546	354	478	391	513
Middle Atlantic	185	533	192	585	202	573	210	581	210	614
East North Central	346	398	[3] 371	[3] 364	340	359	407	351	[3] 331	[3] 323
West North Central	[2] 807	445	903	472	815	427	897	401	789	469
South Atlantic	162	181	149	194	156	[4] 234	[5] 155	[4] 188	173	[4] 202
East South Central	186	219	140	280	145	209	140	163	217	173
West South Central	90	67	112	122	137	63	146	59	86	55
Mountain	337	1,079	219	1,115	246	1,340	210	1,133	146	1,214
Pacific	311	330	249	285	279	254	287	361	249	340

SMALLPOX CASE RATES

	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
101 cities	[2] 50	22	[3] 40	[3] 30	36	[4] 31	[5] 37	[4] 30	[3] 42	[6] 28
New England	0	0	0	0	0	0	0	0	0	2
Middle Atlantic	0	0	0	0	0	1	0	0	0	0
East North Central	23	21	[3] 19	[3] 34	26	35	10	29	[3] 17	[3] 34
West North Central	[2] 61	54	67	54	50	50	51	69	46	30
South Atlantic	99	53	48	54	60	[4] 53	[5] 95	[4] 39	41	[4] 63
East South Central	67	122	67	82	83	132	57	107	98	122
West South Central	193	50	142	71	137	46	142	75	90	63
Mountain	36	0	18	0	64	90	27	18	55	9
Pacific	300	13	260	94	163	84	209	99	346	68

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., and Columbia, S. C., not included.
[5] Norfolk, Va., not included.
[6] Madison, Wis., Norfolk, Va., and Columbia, S. C., not included.

Summary of weekly reports from cities, February 27 to April 2, 1927—Annual rate per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
101 cities	[2] 10	9	[3] 8	[3] 8	6	[4] 7	[5] 8	[4] 8	[3] 10	[6] 8
New England	12	2	5	12	0	5	0	5	7	12
Middle Atlantic	4	5	7-	8	4	6	10	7	8	6
East North Central	5	6	[3] 4	[3] 1	3	4	4	4	[3] 3	[3] 1
West North Central	[2] 0	10	4	4	2	0	2	4	8	2
South Atlantic	6	24	7	11	20	[4] 12	[5] 16	[4] 14	17	[4] 18
East South Central	10	41	5	31	21	20	16	41	31	20
West South Central	39	8	4	17	9	13	9	29	34	25
Mountain	146	9	146	0	9	9	27	0	36	0
Pacific	16	8	0	10	5	18	13	10	11	24

INFLUENZA DEATH RATES

	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
95 cities	[2] 51	25	[3] 71	[3] 27	76	[5] 31	[5] 97	[5] 27	[3] 89	[7] 22
New England	12	9	24	12	45	19	68	7	108	12
Middle Atlantic	68	24	105	25	95	32	112	26	100	21
East North Central	14	23	[3] 32	[3] 16	65	18	104	16	[3] 110	[3] 14
West North Central	[2] 5	17	36	15	32	21	38	15	38	4
South Atlantic	47	48	78	72	51	[5] 62	[5] 83	[5] 67	59	[6] 39
East South Central	259	20	197	76	222	87	253	92	98	102
West South Central	124	39	97	47	146	22	115	26	102	80
Mountain	109	54	146	54	46	18	64	27	27	27
Pacific	32	17	21	7	18	14	14	28	21	24

PNEUMONIA DEATH RATES

	Mar. 6, 1926	Mar. 5, 1927	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927
95 cities	[2] 269	172	[3] 326	[3] 188	372	[5] 183	[5] 372	[5] 166	[3] 335	[7] 164
New England	186	202	217	188	356	172	429	156	467	156
Middle Atlantic	358	193	461	223	504	226	494	199	433	186
East North Central	206	134	[3] 289	[3] 159	355	142	352	141	[3] 322	[3] 148
West North Central	[2] 97	104	148	81	146	114	160	102	160	93
South Atlantic	342	234	303	278	352	[5] 263	[5] 333	[5] 220	201	[6] 232
East South Central	310	260	388	178	398	183	476	188	357	127
West South Central	362	185	238	159	260	190	163	116	185	159
Mountain	237	126	301	171	201	162	191	171	155	162
Pacific	117	121	92	148	99	93	117	110	57	128

[2] Kansas City, Mo., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., and Columbia, S. C., not included.
[5] Norfolk, Va., not included.
[6] Madison, Wis., Norfolk, Va., and Columbia, S. C., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,280,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,709,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,800	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended March 19, 1927.—The following report for the week ended March 19, 1927, was transmitted by the far eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Arabia: Aden	0	0	0	0	13	----------
Ceylon: Colombo	8	5	0	0	0	0
British India:						
Bombay	----------	2	----------	0	65	33
Calcutta	----------	0	----------	52	278	232
Rangoon	----------	3	----------	3	29	9
Madras	----------	0	----------	1	29	1
Negapatam	----------	0	----------	1	2	1
Vizagapatam	----------	0	----------	0	1	1
Siam: Bangkok	0	0	22	14	12	3
Straits Settlements: Singapore	0	0	0	0	1	1
Dutch East Indies:						
Surabaya	1	1	0	0	0	0
Padang	0	0	0	0	1	0
French Indo-China: Saigon	1	1	1	1	0	0
Hongkong	0	0	0	0	13	3
U. S. S. R.: Vladivostok	0	0	0	0	2	0
Kwantung:						
Dairen	0	0	0	0	1	1
Port Arthur	0	0	0	0	1	0
Chosen: Fusan	0	0	0	0	1	0
Japan: Kobe	0	0	0	0	1	0
Egypt: Port Said	1	1	0	0	0	0
Kenya: Mombasa	0	0	0	0	0	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Kamaran.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Karachi, Tuticorin.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Palembang, Makassar, Samarinda.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Tourane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai.

Macao.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo.

Manchuria.—Harbin, Antung, Yingkow, Mukden, Changchun.

Japan.—Yokohoma, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Samoa.—Apia.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Brabera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenco Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—St. Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga, Tamatave.

Reports had not been received in time for publication from:

Dutch East Indies.—Tarakan, Balikpapan.

Belated information:

Week ending March 12: Two plague cases and two deaths were reported from Probolinggo (Dutch East Indies).

INFLUENZA ON VESSEL

Steamship "Benalla"—At Cape Town, Union of South Africa, from Liverpool—February 25, 1927.—The steamship *Benalla* arrived at Cape Town from Liverpool, February 25, 1927, with history of 50 cases of mild influenza and 2 cases of pneumonia during the voyage. The *Benalla* sailed for Fremantle February 26, 1927.

PLAGUE ON VESSEL

Steamship "Leconte de Lisle"—At Tamatave from Mauritius—February, 1927.—The steamship *Leconte de Lisle* left Port Louis, Mauritius, February 18, 1927, touched at Réunion, and arrived February 20, 1927, at Tamatave, Madagascar, where on February 21 it landed a case of plague in a native workman and on February 23 a second case in a young European. Antiplague inoculation was administered to the entire crew by the ship's doctor. The vessel operated in quarantine at ports in Madagascar and at Dar es Salaam, Zanzibar, and Mombasa, was admitted to free pratique at Aden and quarantined at Djibouti. The *Leconte de Lisle* arrived at Suez March 17, 1927, with destination for Marseille. No plague rats were found on board.

CANADA

Communicable diseases—Week ended April 2, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven provinces of Canada for the week ended April 2, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	13			7				20
Smallpox				10			12	22
Typhoid fever			721	5	3			729

Communicable diseases—Ontario—March, 1927—Comparative.—During the month of March, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	March, 1927		March, 1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	4			7
Chancroid	2			
Chicken pox	568		640	
Diphtheria	244	16	155	9
German measles	882		943	
Gonorrhea	144		132	
Influenza	20	24		144
Lethargic encephalitis			1	1
Measles	1,718		2,661	5
Mumps	151		415	
Pneumonia		187		237
Scarlet fever	815	4	632	12
Septic sore throat	3		2	
Smallpox	47		45	1
Syphilis	103		103	
Tuberculosis	116	69	144	88
Typhoid fever	11	6	33	1
Whooping cough	227	2	310	7

Smallpox.—Smallpox was reported present during the month of March, 1927, in 19 localities of the Province of Ontario, the greatest number of cases being reported from Toronto, viz, 12. In 10 localities one case each was reported.

Typhoid fever—Montreal and vicinity—March 4 to April 12, 1927.—The following table shows the cases of typhoid fever reported in Montreal, Canada, and adjacent municipalities from March 4 to April 12, 1927, inclusive:

City	Week ended—						Total to Apr. 9	Total to Apr. 12
	Mar. 5	Mar. 12	Mar. 19	Mar. 26	Apr. 2	Apr. 9		
Montreal	5	128	422	568	631	392	2,146	2,285
Lachine		1			1		2	3
Outremont		10	13	9	11		43	44
Verdun		10	25	30	44	18	127	128
Westmount		1				14	15	18
Total	5	150	460	607	687	424	2,333	2,478

CHILE

Typhoid fever—Typhus fever—September 15–November 15, 1926.—During the period September 15 to November 15, 1926, 46 cases of typhoid fever, with three deaths, viz, Santiago 1, Vina del Mar 2, were reported in Chile. During the same period 39 cases of typhus fever were reported, with 4 deaths, of which 2 deaths occurred at Lebu, capital of the Province of Arauco, and 2 at Santiago.

CUBA

Malaria—Typhoid fever—Santiago de Cuba.—Under date of April 2, 1927, 106 cases of malaria were reported in Santiago, exclusive of cases not medically attended. On the same date 17 cases of typhoid fever, with some fatalities from the disease, were reported.

CZECHOSLOVAKIA

Communicable diseases—January-February, 1927.—During the months of January and February, 1927, communicable diseases were reported in the Republic of Czechoslovakia as follows:

Disease	January		February	
	Cases	Deaths	Cases	Deaths
Anthrax	1		3	
Cerebrospinal meningitis	16	7	25	7
Diphtheria	639	57	566	61
Dysentery	39	12	9	1
Malaria	1		2	
Paratyphoid fever	2		2	1
Puerperal fever	55	23	57	17
Scarlet fever	1,233	20	996	23
Trachoma	169		171	
Typhoid fever	538	47	326	39
Typhus fever	25		23	

ESTONIA

Epidemic prevalence in Estonia—1924-1926.—A recent review of sanitary conditions in the Republic of Estonia shows that contagious disease prevalence was generally normal in Estonia with the exception of measles and scarlet fever. The last serious epidemic of measles was reported in 1922, with 2,811 cases, and of scarlet fever in 1920, with 2,549 cases. In 1926, scarlet fever was frequently accompanied by complications, the percentage of mortality among hospital cases being 2.3 per cent, and among privately treated cases, 6.8 per cent. The epidemic was at its height, with increased mortality, about December 25, and during the month of January, 1927, its return was general with the exception of the Island of Saaremaa (Ösel). In the rural districts the prevalence was not as widespread as in urban districts.

Influenza (grippe).—During the month of January renewed prevalence of influenza, or grippe, was noted. From January 23 to 29, 1927, 268 cases were reported; from that date to February 5, only 152 cases.

Prevalence of certain diseases in 1924, 1925, and 1926.—The following table shows the prevalence of certain diseases for the period 1924–1926, inclusive.

Morbidity from certain diseases for the years 1924, 1925, and 1926

Disease	1924	1925	1926
Diphtheria	461	545	447
Dysentery	125	38	9
Measles	203	82	4,602
Scarlet fever	451	775	3,212
Smallpox	4	5	5
Typhoid fever	957	250	523
Typhus fever	43	21	25

MADAGASCAR

Plague—January 16–31, 1927.—During the period January 16–31, 1927, 216 cases of plague, with 216 deaths, were reported in the Island of Madagascar. The distribution according to type was as follows: Bubonic, 99 cases; pneumonic, 63; septicemic, 54.

Plague declared epidemic—Measures to prevent spread.—Plague was officially declared epidemic February 7, 1927, in a defined region of the Province of Ambositra. This region borders on the Antisirabé district, where an outbreak had been in active progress during the preceding six weeks. The Government sanitary service was stated to have been very active in Antisirabé. Vaccinations were administered, and rat destruction was actively carried on. By February 9, 1927, 6,138 vaccinations had been administered.

PERU

Plague—February, 1927.—During the month of February, 1927, plague was reported in Peru, with 32 cases and 8 deaths, distributed in the four Departments of Lambayeque, Libertad, Lima, and Piura. The greatest prevalence was reported in the Department of Lima, viz, 20 cases, with 6 deaths, of which 10 cases, with 4 fatalities, occurred in the city of Lima and 2 cases on country estates in the vicinity.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries inlcuded or the figures for the particular countries for which reports are given:

Reports Received During Week Ended April 22, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Jan. 29–Feb. 5, 1927: Cases, 4,890; deaths, 2,761.
Calcutta	Feb. 27–Mar. 5	41	25	
Madras	Mar. 6–12	1	1	
Rangoon	do	5	4	
Siam				Feb. 20–26, 1927: Cases, 76; deaths, 57. Apr. 1, 1926–Feb. 26, 1927: Cases, 8,173; deaths, 5,402.
Bangkok	Feb. 20–26	13	5	District.
Straits Settlements:				
Singapore	Feb. 6–12	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 22, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Brazil:				
Porto Alegre	Jan. 1-31	4	2	4 suspect plague rodents.
Ceylon:				
Colombo	Feb. 27-Mar. 5	3	2	Plague rodent, 1.
Egypt:				
Port Said	Mar. 16	1	1	
India				Jan. 29-Feb 5, 1927: Cases, 2,998; deaths, 1,998.
Bombay	Feb. 27-Mar. 5	5	4	
Madras Presidency	Feb. 13-19	85	51	
Rangoon	Feb. 27-Mar. 5	4	5	
Madagascar.				
Antsirabe, town and district.	Jan. 16-31	12	12	
Ambositra Province	do	23	23	
Diego-Suarez Province	do	3	3	
Itasy Province	do	21	21	
Moramanga Province	do	13	13	
Tananarive town	do	10	10	
Tananarive Province	do	134	134	
Peru				February, 1927; Cases, 32; deaths, 8.
Lambayeque—				
Province—				
Chiclayo	Feb. 1-28	4	1	One locality.
Lambayeque	do	2	1	Two localities.
Libertad—				
Province—				
Pacasmayo	do	2		One locality.
Trujillo	do	3		Do.
Lima—				
Province—				
Canete	do	5	2	Districts.
Chancay	do	3		At Huacho.
Lima	do	12	4	Lima City, cases, 10; deaths, 4; on country estates, cases, 2.
Piura—				
Province—				
Huancabamba	do	1		
Siam				Feb. 20-26, 1927: Case, 1; death, 1. Apr. 1, 1926-Feb. 26, 1927: Cases, 38; deaths, 29.
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar. One native, one European. Vessel left Port Louis, Mauritius, Feb. 18, 1927; arrived Tamatave Feb. 21. Operated in quarantine at ports in Madagascar and on mainland; received free pratique at Aden—quarantine at Djibuti. Arrived Mar. 17 Suez; destination Marseille.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Mar. 1-10	5		
Brazil:				
Rio de Janeiro	Feb. 20-Mar. 19	12	6	
British East Africa:				
Kenya—				
Nairobi	December, 1926	15	5	Variola.
Canada:				
Alberta—				
Calgary	Mar. 27-Apr. 2	7	1	
Ontario—				
Toronto	do	4		
China:				
Amoy	Feb. 20-26	1		
Great Britain:				
England and Wales	Mar. 6-26	1,258		
India				Jan. 23-Mar. 5, 1927: Cases, 11,158; deaths, 2,727.
Bombay	Feb. 27-Mar. 5	71	37	
Calcutta	do	248	170	
Karachi	do	4		
Madras	Mar. 6-12	20		
Rangoon	Feb. 27-Mar. 5	42	6	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 22, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Iraq:				
Baghdad	Feb. 12	2		
Mexico:				
Manzanillo	Mar. 29-Apr. 4		4	
San Luis Potosi	Mar. 27-Apr. 2		1	
Portugal:				
Lisbon	Mar. 20-26	2		
Siam				Feb. 20-26, 1927: Cases, 8; deaths, 7. Apr 1, 1926-Feb. 26, 1927: Cases, 761; deaths, 290.
Bangkok	Feb. 20-26	6	5	District.
Sumatra:				
Medan	do	1		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Mar. 1-10	7		
Chile				Sept. 15-Nov. 15, 1926: Cases, 39; deaths, 4.
Concepcion	Sept. 15-Nov. 15	1		
Lebu	do	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	do	18	2	
Valparaiso	do	4		
Do	Mar. 13-19	1		
Czechoslovakia	Jan. 1-Feb. 28	48		
Estonia				Years 1924-1926: Cases, respectively, 43, 21, 25.
Mexico:				
Mexico City	Mar. 13-19	2		Including municipalities in Federal district.
Palestine:				
Nazareth district	Mar. 1-7	1		
Spain:				
Seville	Mar. 16-22		1	

Reports Received from January 1 to April 15, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 10			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-22			Cases, 9,029; deaths, 5,063.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Feb. 26	454	350	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar. 5	9	7	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Feb. 26	43	39	
Indo-China	July 1-Aug. 31			Cases, 3,446; deaths, 2,276.
Sagion	Oct. 31-Nov. 13	2	2	
Prvoince—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Feb. 12			Cases, 192; deaths, 142.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Feb. 12	14	5	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-31	3		At Port Alexander.
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 23	2	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Feb. 26	30	15	9 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Present.
Do	Feb. 6-Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-28			Cases 13.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kovalla.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-22			Cases, 4,535; deaths, 3,047.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Feb. 12	4	4	
Madras	Jan. 31-Jan. 1	581	324	
Do	Oct. 2-Feb. 12	572	363	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Feb. 26	40	35	
Indo-China	July 1-Aug. 31			Cases, 34; deaths, 19.
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18.
Iraq:				
Baghdad	Jan. 23-Feb. 5	2	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Feb. 26	202	195	
East Java and Madura	Oct. 24-Jan. 1	17	17	
Do	Jan. 2-Feb. 12	12	12	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan. 1-15	9	9	
Analalava	Oct. 16-31	1	1	
Antisirabe	Dec. 16-31	2	2	
Do	Jan. 1-15	5	5	
Diego-Suarez	do	4	4	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan. 1-15	8	8	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-15	29	27	
Tamatave	Oct. 16-Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1-15	104	99	
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	34	
Do	Jan. 1-15	1	1	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Nigeria	Aug. 1-Nov. 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-31	47	10	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	do			Present in Province.
Chiclayo	do	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-31	1		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-31	46	10	
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Feb. 12			Cases, 7; deaths, 5.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Tunisia	Dec. 1-31			Cases, 48.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Feb. 19	3	1	
De Aar district	Nov. 21-27	1		Native
Glen Gray district	Jan 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 13; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-20	86		
Algiers	Dec. 11-31	4		
Do	Jan. 1-Feb. 10	3		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Feb. 12	51	25	
Sao Paulo	Aug. 28-Dec. 5	34	18	
British East Africa:				
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Mar. 26			Cases, 501.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Mar. 26	177		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Mar. 19	33		
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 20	7		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Mar. 12	20		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Mar. 26	257		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Mar. 26	6		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Mar. 26	70	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Mar. 12	45		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec 26-Jan. 1		5	
China:				
Amoy	Jan. 1-15	1		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Feb. 19			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Feb. 19			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan 23-Mar. 8	56	38	
Manchuria—				
Harbin	Dec 16-31	3		
Do	Feb. 7-13	1		
Mukden	Dec 5-31	1		
Nanking	Dec. 12-25			Do.
Do	Jan 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 30-Feb 26		2	
Swatow	Nov 21-27			Do.
Tientsin	Jan 16-Feb 26	20		
Chosen	Aug. 1-Nov. 30	53	19	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Feb. 20	17	3	
French Settlements in India	Aug. 29-Dec. 18	118	118	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Mar. 5			Cases, 4,491.
Birmingham	Mar. 13-19	5		
Bradford	Jan 9-22	2		
Cardiff	Feb. 13-19	1		
Dundee	Mar. 31	42		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Mar 12	16		
Normanton	Dec 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Mar. 19	523		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-Feb. 28		51	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,006.
Do	Jan. 2-22			Cases, 14,228; deaths, 3,495.
Bombay	Nov. 7-Jan. 1	37	26	
Do	Jan. 2-Feb. 26	223	118	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan 2-Feb. 26	1,092	791	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Feb. 26	28	25	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Mar. 5	193	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Feb. 26	107	23	
Indo-China	July 1-Aug. 31			Cases, 52; deaths, 19.
Province—				
Annam	do	11	5	
Cambodia	do	18	7	
Cochin-China	do	9	2	
Saigon	Dec. 26-Jan. 1	3		
Laos	July 1-Aug. 31	4	2	
Tonkin	do	10	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-29	1		
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 12	95		Do.
Japan	Oct. 24-Dec. 25	25		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-22	7		
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec 26-Feb. 26	5		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	61	2	Other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Mar. 26		24	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Nov. 30	78	4	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Mar. 12	29		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Mar. 6	3		
Siam	Apr. 1-Jan. 1			Cases, 711; deaths, 268.
Do	Jan. 2-Feb. 19			Cases, 42; deaths, 11.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Feb. 19	21	13	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Mar. 19	7		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-20	8		
Tunis	Jan. 1-Mar. 10	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethal district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-20			Cases, 21.
Algiers	Feb. 1-28	15		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Chile:				
Concepcion	Jan. 23-29		1	
Valparaiso	Nov. 21-Dec. 25	6		
Do	Jan. 2-22	4	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Nov. 30	43	2	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-28	1		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-31	7		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-28	4		
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 15, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Mexico	July 1-Oct. 31			Deaths, 534.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-Mar. 5	58		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Feb. 12			Cases, 414; deaths, 32.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-20	21		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-31	38	4	
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Orange Free State	Oct 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 19	12	3	
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Feb. 28	65	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Volta:				
Gaoua district	Oct. 25	2		

X

TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

ISSUED WEEKLY

BY THE UNITED STATES
PUBLIC HEALTH SERVICE

VOLUME 42 :: :: NUMBER 17

APRIL 29 - - - 1927

SPECIAL ARTICLES

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

The PUBLIC HEALTH REPORTS are intended primarily for distribution to health officers, members of boards or departments of health, and those directly or indirectly engaged in or connected with public health or sanitary work. Articles of general or special interest are issued as reprints from the PUBLIC HEALTH REPORTS or as supplements, and in these forms are available for general distribution to those desiring them.

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CONTENTS

PUBLIC HEALTH REPORTS

VOL. 42 APRIL 29, 1927 NO. 17

COMMENTS FROM READERS OF THE PUBLIC HEALTH REPORTS

On March 25, 1927, the Surgeon General of the United States Public Health Service sent a circular letter to all those on the mailing list receiving the PUBLIC HEALTH REPORTS, which read as follows:

> We are very desirous of making the weekly PUBLIC HEALTH REPORTS of the greatest possible value and assistance to public health officials and others to whom they are distributed. In the accomplishment of this purpose, your full and frank comment and criticism are earnestly solicited.
>
> It is requested that you submit any suggestions that you may have as to the character of material that you would find of most value, and also as to any material now being included in the REPORTS which you believe might be omitted without detriment.
>
> Your prompt and careful consideration of this matter will be very much appreciated.

Several hundred letters have already been received in reply to this communication, in which a great many helpful suggestions have been offered by those who read the PUBLIC HEALTH REPORTS. It is not practicable to make a personal reply to all those who have sent in suggestions and criticisms, and the Surgeon General takes this opportunity of thanking each reader who responded to the communication quoted above.

Quite a number of persons replying to the letter stated that an index to the PUBLIC HEALTH REPORTS would be useful. For their information, and for the information of others interested, it may be stated that such an index is printed twice each year, covering the material that has appeared in the issues of the preceding six months. The PUBLIC HEALTH REPORTS are designed for binding in a double volume for each year. The REPORTS for the months of January to June, 1927, inclusive, are to be bound as volume 42, part 1, and the issues from July to December, 1927, to be bound as volume 42, part 2.

The Public Health Service can not undertake to supply bound volumes of PUBLIC HEALTH REPORTS. It does, however, furnish an index for each half year—January–June and July–December—convenient for binding. This index is now being sent to libraries, medical journals, Public Health Service stations, and subscribers who have requested it. Other subscribers may obtain the index as it is issued twice each year by addressing a request to the Surgeon General, United States Public Health Service, Washington, D. C.

DEFINITIONS OF PASTEURIZATION AND THEIR ENFORCEMENT [1]

By LESLIE C. FRANK, *Sanitary Engineer;* FREDERIC J. MOSS, *Assistant Sanitary Engineer;* and PETER E. LEFEVRE, *Associate Milk Specialist, United States Public Health Service*

There can be no question that Pasteurization is the most potent single force operating to-day to prevent the transmission of milk-borne diseases. In most fields of public health, however, actual practice tends to fall short of the laboratory ideal, and the conviction has recently become acute that this is true of commercial Pasteurization.

It would be of very questionable service to the true cause of Pasteurization were we to attempt to belittle the defects of present practice. Such an attempt would merely furnish the opponents of Pasteurization with ammunition. It will be far more to the purpose to bring the defects to light and correct them, and thereby forestall opposition.

The object of this paper is, therefore, to discuss: (1) Certain unsatisfactory aspects of the present status of milk Pasteurization, and (2) a suggested remedy.

THE PROBLEM

The principal difficulties in the enforcement of present-day definitions of Pasteurization are as follows:

(*a*) That some of them, if actually enforced as intended, do not insure uniformly effective Pasteurization; (*b*) that some of them, though theoretically effective, can not be effectively enforced without more information than is at present available to local health officers; and (*c*) that some of them, if strictly enforced as intended, will partly or completely destroy the creaming ability of the milk and consequently produce a sales resistance to Pasteurized milk which it would be highly desirable to avoid if consistent with safety.

The vast majority of definitions of Pasteurization in use to-day in this country specify a temperature of either 142° F. or 145° F., and a holding time of 30 minutes. In order to simplify discussion, these limits will be freely used as illustrative examples in this paper.

The first difficulty—namely, that certain types of ordinances do not insure effective Pasteurization—concerns itself with a type of definition of which the following is an example:

> Pasteurized milk is milk which has been heated to at least 142° F. (or 145° F.) and held thereat for at least 30 minutes.

[1] Expanded from a paper read at the Fifty-ninth Annual Meeting of the American Public Health Association, Buffalo, N. Y., October, 1926.

This type of definition is usually enforced by requiring the recording thermometer to read 142° F. (or 145° F.) for 30 minutes. The health officer assumes that every particle of milk will thus be subjected to at least 140° F. for 30 minutes, which most authorities accept as being lethal to milk-borne pathogens.

Unfortunately this can not be assumed with safety. Experiments conducted by the United States Public Health Service in the course of its Pasteurization research work, recently inaugurated in Chicago, show that some apparatus in wide usage will permit part of the milk to pass through far below the minimum lethal temperature even if the recording thermometer indicates 145° F. for 30 minutes. In most cases this is the result of "cold pockets," foam, valve leakage, and unsatisfactory devices for indicating and controlling temperature and time.

The second difficulty—namely, that some definitions, though theoretically effective, are not actually enforceable with the information at present available—has to do with several different types of definition. The following is one example:

> Pasteurized milk is milk which has been heated to at least 142° F. (or 145° F.) and held thereat for at least 30 minutes *in Pasteurization apparatus approved by the health officer.*

This type of definition attempts to remedy the difficulty above discussed by forbidding the use of improperly designed apparatus, and assumes that the local health officer is in possession of all the necessary technical information concerned.

Unfortunately the local health officer does not always possess such complete technical information. The published material relative to design defects and the required margins of safety for all of the many designs of apparatus on the market is very incomplete.

In order to be able to enforce this type of definition effectively, therefore, the local health officer would have to employ a sanitary engineer or similarly trained assistant, to determine these facts for him for every type of apparatus in use in his community.

Several States and cities have recently attempted to formulate design and operation specifications for Pasteurization machinery. Much good has thus been accomplished and many improvements have already been made by the manufacturers as a result of the enforcement of these specifications, but it is believed safe to say that the fundamental data upon which such specifications should be based are not yet fully available for many types of apparatus. A few machines have been studied and the results secured are valuable. The machines studied, however, are far too few in number and are indeed not even named in the publications, for obvious reasons.

It is clear, then, that the local health officer is not in a position to enforce this type of definition effectively.

Another type of definition which has the same shortcoming is illustrated by the following example:

> Pasteurized milk is milk *every particle of which* has been heated to at least 142° F. (or 145° F.) and held thereat for at least 30 minutes in Pasteurizing apparatus approved by the health officer.

This type of definition presupposes an entirely different method of enforcement. In this type the commercial practice margin of safety is evidently intended to be applied above the definition limits. The phrase "every particle of which" indicates clearly that the intent of the definition is that the apparatus shall be so operated that every particle of milk is to be treated as defined and that the commercial practice margin of safety required to bring this about must be added to the definition limits in enforcing it. In other words, if the definition requires that every particle of milk be heated to at least 145° F., the recording thermometer of any given machine must show an excess temperature above this point equal to the safety margin required by that machine.

In this type of definition we have, therefore, to deal in reality, with two superimposed safety margins—one a blanket margin lying between the generally accepted lethal limit of 140° F. and the definition temperature of 142° or 145° F., and the other a secondary margin evidently intended by the wording to be applied above the definition limit.

The purpose of the first or primary margin is somewhat vague, but possibly reflects a feeling of conservatism as to the usually accepted lethal limit of 140° F. as found in the laboratory.

This is, therefore, a very conservative type of definition and would, in the opinion of most authorities, be effective if it could be enforced.

The enforcement of this type of definition is, however, subject to the same difficulty as is the enforcement of the one previously discussed. The information at present available to the local health officer is not sufficiently complete to enable him to know what margin of safety he should require for the various types of apparatus in order that he may satisfy himself that "every particle of milk" is actually exposed to the definition limits, and, furthermore, does not enable him to recognize design defects which no margin of safety can be expected to offset.

The third difficulty—namely, that some definitions of Pasteurization, if strictly enforced as intended, will partly or completely destroy the creaming ability of the milk—applies to any definition which requires that any considerable portion of the milk be exposed to more than 145° F. for the usual holding period of 30 minutes. This fact has been satisfactorily demonstrated in repeated experiments.

Reduction of creaming ability is not encountered in the enforcement of definitions which are intended to require a recording thermometer

temperature of at least 142° F. This is quite generally agreed upon. Some authorities believe, however, that reduction of creaming ability will be encountered whenever the required thermometer temperature approaches 145° F., because, under a literal enforcement of this requirement, the apparatus must be operated at somewhat above 145° F. in order that the recording thermometer shall never be found to dip below 145° F. as a result of unavoidable operation fluctuations. The testimony on this point is conflicting, however, and many health officers are not convinced that a recording thermometer temperature of 145° F. will reduce creaming ability if certain other plant processes are properly carried out.

Definitions which require "every particle" to be exposed to at least 142° F. will not cause reduction in creaming ability unless the apparatus used requires a commercial practice factor of safety of more than 3° F. Apparatus which requires a higher margin will be likely to cause trouble.

Definitions which require "every particle of milk" to be exposed to at least 145° F. will be practically certain to cause creaming difficulties if literally enforced, because here the commercial practice factor of safety will lift the actual temperature to which much of the milk is exposed considerably above 145° F.

Before leaving this subject it should be reemphasized that, if consistent with safety, reduction of creaming ability should be avoided as it will inevitably prejudice consumers against Pasteurized milk. Not many consumers feel financially able to purchase cream separately, and the custom of using top milk for coffee and cereal is almost universal. It would be a superhuman task to change this custom suddenly and by force.

The thought has been advanced that an edict to Pasteurize all milk in such a manner as to destroy entirely its creaming ability would not meet with serious reaction, because no raw milk would be available to which the consumer could turn. It is believed, however, that there would be serious public opposition to such a step, and it must be remembered that the great majority of our cities still emphatically insist upon permitting the sale of raw milk. In these cities we would be practically certain to have a reversion toward the use of raw milk if we were to remove the visible cream from Pasteurized milk.

It is believed, therefore, that if a definition of Pasteurization can be evolved which can be rigidly enforced, which will be effective, and which will still preserve the creaming ability of milk, it will be highly desirable.

Let us now restate the problem. It is clear—

(1) That definitions of Pasteurization which do not specify approved apparatus can not be depended upon to provide uniformly effective Pasteurization, whereas those which do specify approved

apparatus can not be effectively enforced because of the lack of an adequate basis for approval.

(2) That definitions of Pasteurization which require "every particle of milk" to be exposed to a given temperature for a given time obviously imply a knowledge which the average health officer does not now possess. He can not answer the question, "Will a given machine apply the prescribed time and temperature to every particle of milk, and under what operating conditions?"

(3) That some present-day definitions of Pasteurization would, if strictly enforced, partly or completely destroy the creaming ability of milk and consequently interfere with Pasteurized milk sales.

A SUGGESTED REMEDY

The above statement of the problem points the way fairly obviously to at least part of the remedy. Certainly it is desirable that some competent and responsible agency should furnish us as early as possible with the results of exhaustive tests on various makes of apparatus. Certain of the States or cities may decide to undertake this work for the benefit of their citizens, or they may adopt such valid determinations as are or may be made by other agencies. These tests should determine for each type of apparatus the following: (1) What design corrections should be made, if any, before its use should be authorized at all? (2) What margin of safety must be applied in its operation before it can be expected to apply any given Pasteurization limits to every particle of milk passing through it? and (3) How it must be operated in order that the recommended margin of safety may be adequate.

The agency doing the testing could well be advised and supported by a committee of experts representing health officers, the apparatus industry, the dairy industry, and the Federal health and dairy agencies. The United States Public Health Service has for some time anticipated the necessity for such testing work and has recently inaugurated investigations intended to define the problem and develop the technique of testing. Once such information is available for all makes of apparatus, and continuously augmented for newly appearing types of apparatus, the solution of our problem will have become relatively simple, provided only that some point or points upon the minimum lethal curve can be generally agreed upon.

This latter must of course be the business of bacteriologists, but until an authoritative pronouncement is issued by them to the contrary it is believed that it will be a sensible policy for health authorities to accept the rule that 140° F. will be lethal for milk-borne pathogens if actually applied to every particle of milk for 30 minutes.

If this be tentatively assumed, we have, then, merely to decide whether we wish to incorporate in our definition an arbitrary blanket margin of safety covering all apparatus, and bar from use any apparatus requiring more than that margin, or whether we wish the definition to state in absolute terms the time and temperature which shall actually be applied to every particle of milk, and then to require that the recording thermometer of any given machine must show the legally required temperature and time plus the safety margin officially recommended for that machine.

If the first type of definition be selected, it might read something like the following: "Pasteurized milk is milk which has been heated to at least —° F. and held thereat for at least — minutes as indicated by its recording device, provided that no apparatus shall be used which has not been approved by the (accepted agency making the official tests) for use under this definition, and provided that all apparatus shall be operated in accordance with the directions recommended by the (accepted agency making the official tests)."

If the second type of definition be selected, it might read as follows: "Pasteurized milk is milk every particle of which has been heated to 140° F. and held thereat for 30 minutes in apparatus approved by the health officer, provided that the recording device shall indicate a temperature and time in excess of 140° F. and 30 minutes, equal to the safety margin recommended by the (accepted agency making the official tests) for the apparatus in question, and provided the apparatus is operated in accordance with the directions recommended by the (accepted agency making the official tests)."

It is obvious that neither of the definitions here suggested can be used immediately. They are without value until there is available the complete information necessary to their enforcement.

The question will, therefore, immediately arise, "How can the health officer best protect the milk consumer in the meantime?" It is believed that his most effective work will be to see that the defects in the design of Pasteurization machinery are corrected.

The Pasteurization-machinery studies being conducted by the Public Health Service in Chicago show quite clearly that, in pursuing the sharp controversy as to whether the definition "temperature" should be 142° F. or 145° F., we have neglected the equally serious problem of machinery defects, which neither of the two temperatures will offset.

Neither 142° F. nor 145° F., as indicated by the indicating or recording thermometers for the main body of the milk, will offset a temperature drop frequently as high as 6° or 7° and occasionally as high as 50° F. in the milk in "cold pockets" or "dead ends" which are beyond the influence of the heating and agitation devices. These "cold pockets" or "dead ends" usually consist of a pipe section

between the holder proper and the effluent valve, the milk in which is not properly heated during the heating period or drops in temperature during the holding period.

Plate 1 illustrates "dead end" effluent fittings frequently encountered. It is obvious that the milk held in these fittings during the holding period will not be effectively Pasteurized. When the vat is filled with cold milk prior to heating, the milk in pipe *a–a*, upper illustration in Plate I, has been observed to be almost as cold at the end of the heating period as at the beginning. In the case of the effluent fitting shown in the lower illustration some heating takes place but not to the full Pasteurization temperature.

The remedy for this defect is, of course, either to bring the seat of the effluent valve flush with the inside of the holder (flush type valve) or so nearly flush as to bring the milk within the effluent fitting within the influence of the milk agitation device (if there is one), and thus cause a constant exchange of milk between the holder proper and the inside of the fitting.

Where the holder is not provided with an agitation device, as in the case of certain pocket type designs, or where the agitation device is not used during the holding period, the flush type valve will probably be imperative.

The "cold pocket" defect exists also in the riser pipe at the effluent end of certain continuous-flow apparatus. The remedy here consists also in providing a flush type valve.

Plate II (upper illustration) shows one type of flush type valve. The seat of the valve when closed is flush with the inside lining of the vat.

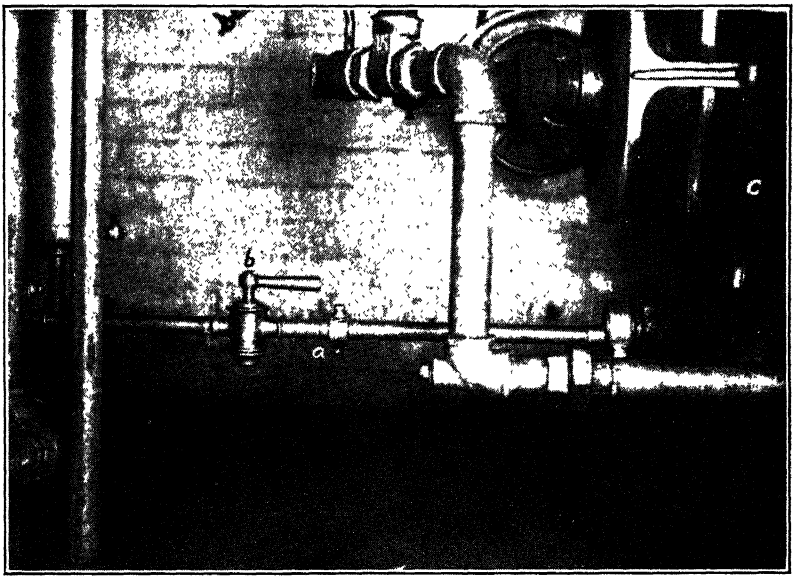
Furthermore, neither of the two controversial temperatures will be adequate to solve the problem of "cold foam" A large percentage of the designs of milk-handling equipment in use to-day result in the formation of a blanket, or of islands of foam on the surface of the milk in the vat or pocket type holders.

The temperature of the air above the milk is frequently far below the temperature of Pasteurization, and our studies show that the temperature of the foam can be well below 130° F. when the main body of the milk is at 145° F.

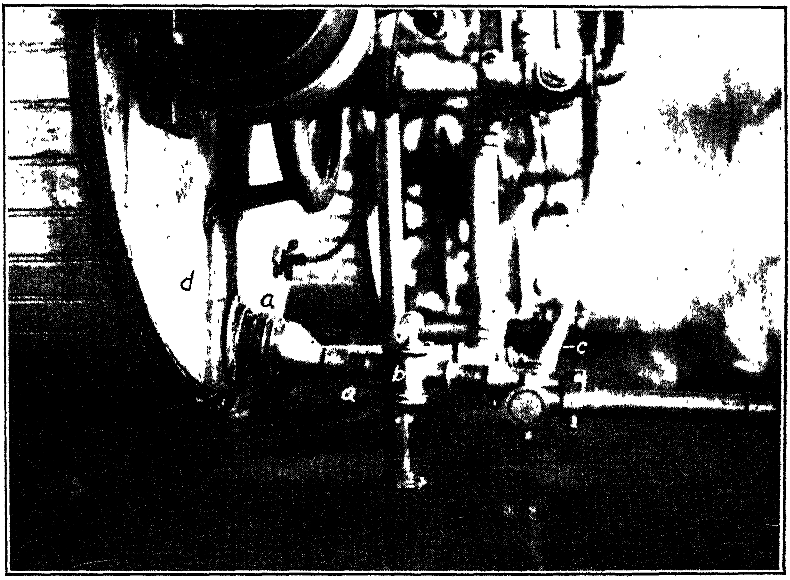
It is, of course, obvious that the mixture of foam and milk which leaves the vat at the end of the Pasteurization process is not safely Pasteurized. Any infection present in the foam before Pasteurization may be present in the foam after Pasteurization and will partly destroy the value of the Pasteurization process.

The remedy is, of course, either to eliminate the foam entirely or to keep the foam at the Pasteurization temperature.

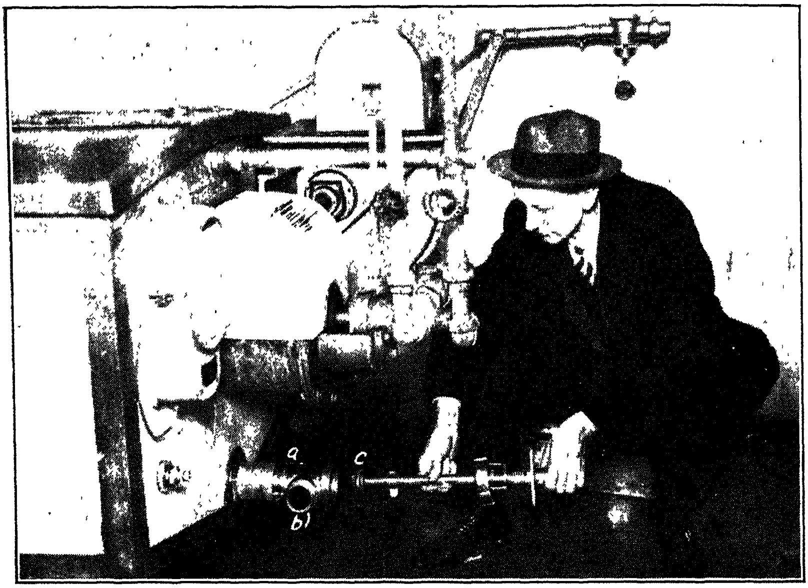
Steps are now being taken by the manufacturers of milk-plant equipment to eliminate or reduce foam by correcting the designs of



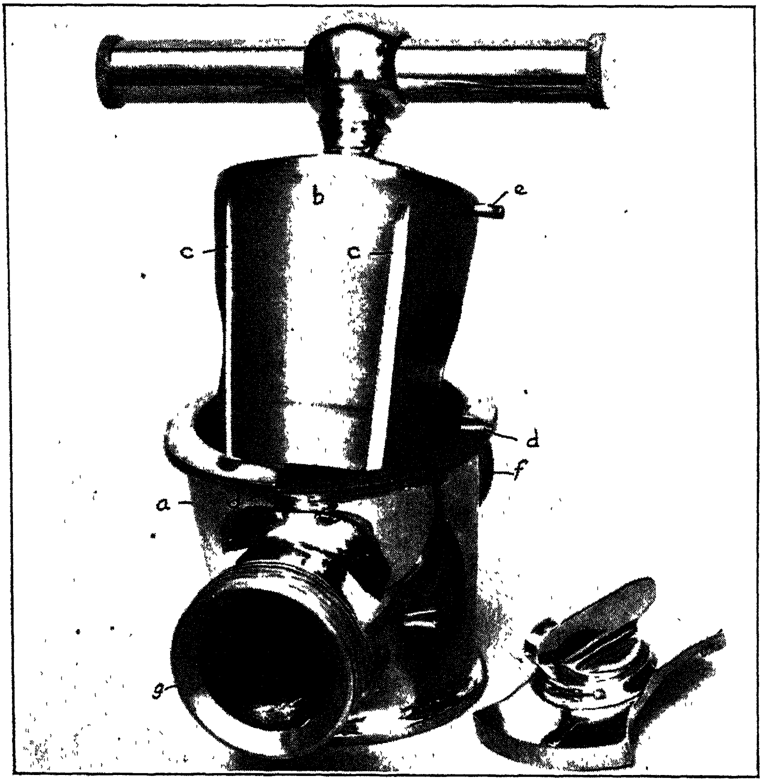
"Dead end" effluent fitting on Pasteurization vat. The milk held in pipe *a–a* during the holding period is not effectively Pasteurized



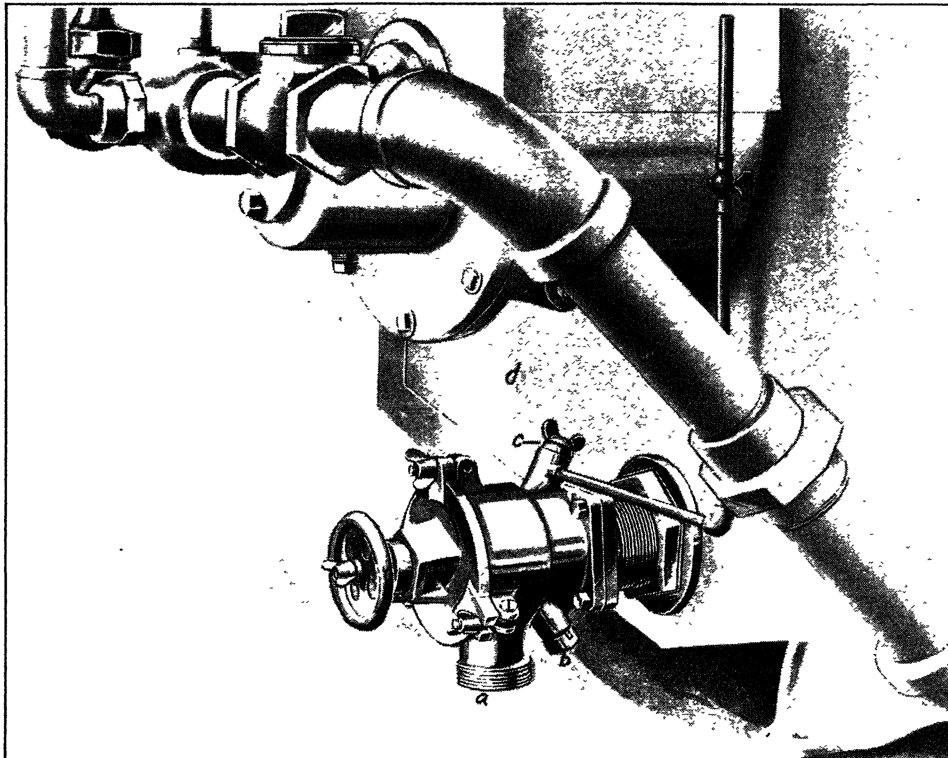
"Dead end" effluent fitting on Pasteurization vat. The milk in the fitting *a–a* is not effectively Pasteurized



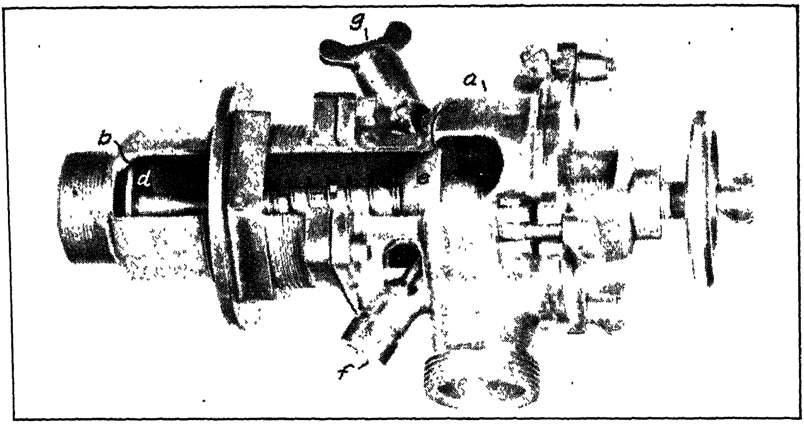
Coil vat equipped with flush-type valve: *a* is valve body; *b*, outlet connection; *c*, valve seat, which shuts off flush with inside lining of vat



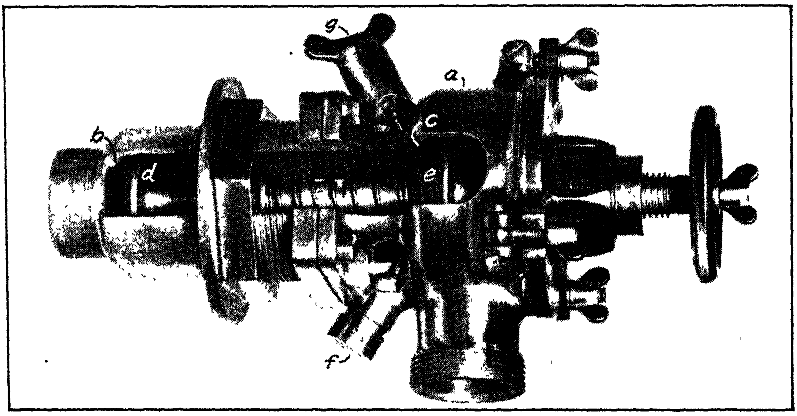
Leak-protector inlet valve: *a*, valve body; *b*, valve plug; *c–c*, leak drain grooves; *d–d*, stops; *e*, stop pin; *f*, *g*, connections to inlet header line and holder, respectively



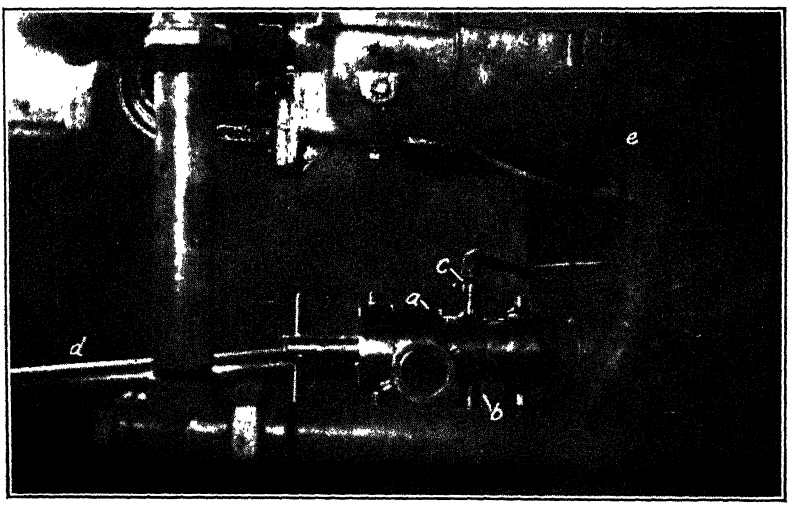
Flush-type leak-protector valve on coil vat: *a*, outlet; *b*, leak drain; *c*, steam connection; *d*, coil vat



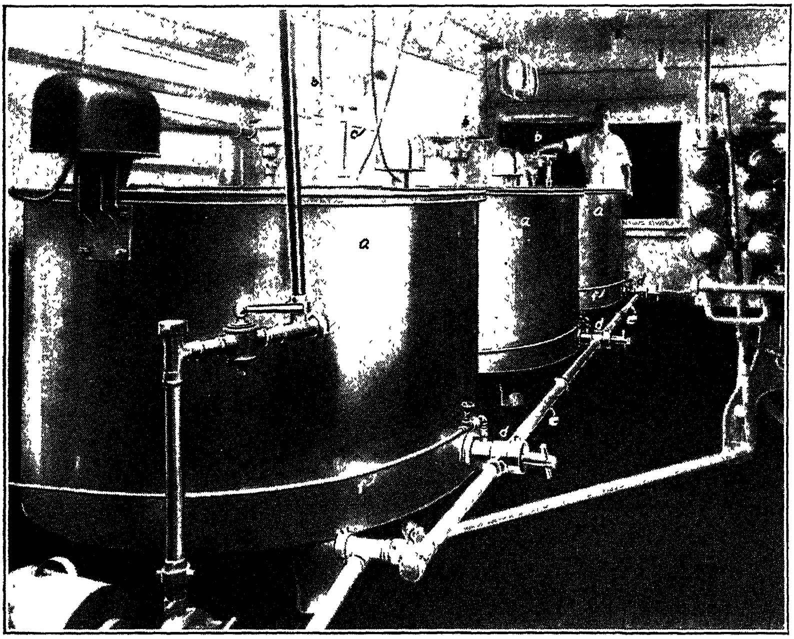
Flush-type leak-protector valve in closed position: *a*, valve body; *b*, *c*, valve seats; *d*, *e*, corresponding disks; *f*, leak drain; *g*, steam valve



Flush-type leak-protector valve in open position. Parts designated as above



Flush-type leak-protector valve on coil vat: *a*, valve body; *b*, leak drain; *c*, steam connection; *d*, outlet pipe; *e*, coil vat



Series of three vat holders equipped with leak-protector inlet and outlet valves. Inlet and outlet pipes remain connected *a–a*, vat holders; *b–b*, leak-protector inlet valves; *c* inlet header line, *d–d*, flush-type leak-protector outlet valves; *e*, outlet header line; *f–f*, steam connections to valve

those parts of the machinery principally at fault, namely, milk pumps, milk clarifiers, flash heaters, and turbulence producing inlet devices to Pasteurization vats or pockets. Excellent progress is being made and properly designed equipment will probably result in the elimination of much, if not all, of the foam.

It is not certain as yet, however, that foam will ever be completely eliminated, and one possible remedy will be to require the heating of the atmosphere above the milk by means of either steam or hot air.

All Pasteurization plants have steam available, and the introduction of a small jet of steam above the body of the milk will be a simple procedure. A trap should, of course, be provided so as to prevent any water from condensation in the steam line from reaching the Pasteurization chamber. The condensation of steam in the chamber itself will be insignificant in quantity. Several of the Chicago plants have already incorporated this change, and tests by the Public Health Service are in progress to determine its effectiveness.

Another defect which can not be offset by temperatures of either 142° F. or 145° F. is that of leaky valves. Practically all valves used in milk work will leak sooner or later, due to the inevitable scoring of the valve seat in service. If the valve in question is an influent valve connected to the un-Pasteurized raw milk supply, raw milk will leak into the Pasteurization chamber during the holding period. This leakage will therefore not have been held for the full required holding period, and can not be considered as having been effectively Pasteurized.

On the other hand, if the valve in question is an effluent valve, any leakage taking place before the milk in the Pasteurizer has been held for the full holding period, will contaminate the Pasteurized supply with which the effluent fitting may be connected.

The correction of this defect lies, of course, in either disconnecting the holder from the effluent system entirely during the filling, heating, and holding period, and disconnecting the holder from the influent system during the heating and holding period, or of substituting for the present valve one of the recently designed leak-protector valves. These leak-protector valves are designed with a leak port which captures any leakage and leads it to waste.

In the case of plug-type valves, permitted in influent fittings, this leak-escape device consists of vertical grooves in the plug face. Plate II (lower illustration) shows a plug-type inlet valve provided with leak-escape grooves. Any milk leaking past the inlet port of the valve drops into the grooves and escapes through the bottom of the valve. It can not gain access to the Pasteurizer holder. In the case of flush-type valves used in effluent fittings, the leak-escape device consists of a leak port located between two valve seats. The port is closed when the valve is open, and open when the valve is closed.

Plates III and IV illustrate several types of leak-protector flush valves. The two upper illustrations in Plate IV show a cutaway view of one design. The leak drain is shown at *f*. During the heating and holding period the valve is closed. Both valve disks *d* and *e* are closed tight against the corresponding valve seats *b* and *c*. In this position leak drain *f* is held open by pressure of disk *e* upon the small push rod of *f*. Thus, any leakage past the inner valve seat *b* drains away and can not pass outer valve seat *c*. When the valve is open and the vat is being emptied, the pressure upon the push rod of *f* is released and the drain is closed, thus preventing the wastage of milk.

Another defect in design which must be corrected is that effluent valves become contaminated with leakage during the filling, heating, and holding period. This contamination is not avoided, of course, by the leak-escape feature above described. For this reason either a manual or automatic steaming of effluent valves is recommended either continuously during the holding period or just prior to the discharge of Pasteurized milk from any holder. Steam connections are shown in Plates III and IV.

A defect found in long-distance flow holders as a result of the Public Health Service studies is the existence of unequal temperatures in the air surrounding the holder tubes. The variation found has been as much as 19° F. This may be corrected by the thermostatically controlled heating of the air in the holder. Agitation of the air in the holder may further prove necessary in order to insure sufficiently even distribution of temperature.

The above is merely a tentative list of defects thus far studied and will probably have to be augmented as the studies proceed.

In general, it is desired to reemphasize the fact that no mere fixing of definition temperatures will offset the serious danger produced by these defects, and it is believed that health officials will be well advised to devote immediate attention to their correction.

In the meantime experimental work should be pushed as rapidly as possible to determine the safety margin or margins which must be provided for correctly designed apparatus.

TENTATIVE DRAFT OF SPECIFICATIONS

Following is a tentative draft of specifications of Pasteurization apparatus which are suggested for use pending further developments in Pasteurization apparatus studies:

VAT TYPE APPARATUS

(Milk heated in the holder)

(*a*) The apparatus shall be so designed that every particle of milk will be agitated during the entire heating period. This disbars any apparatus containing "cold pockets" or pipe sections which are beyond the influence of the agitation device.

(*b*) The vat must be either disconnected entirely during the holding period from any influent piping, and during the filling, heating, and holding period from the effluent piping, or provided with leak-escape valves which will not permit any un-Pasteurized milk to enter the vat during the holding period or any incompletely Pasteurized milk to escape into the effluent piping at any time.

(*c*) The lids of vats must be kept closed during operation, and so designed that nothing on top thereof will drop into the vat if opened.

(*d*) Every vat shall be provided with an indicating thermometer, as well as a recording thermometer. The indicating thermometer shall be accurate within 1° F. The recording thermometer shall be checked daily by the plant operator, and at least biweekly by the health officer. The indicating, and not the recording, thermometer shall be used as an index of temperature by the plant operator.

(*e*) All effluent fittings shall be steam sterilized, either manually or automatically, immediately before discharge of the Pasteurized milk.

(*f*) Designs which permit foam formation, whether in large or small quantities, shall be equipped with a steam or hot-air device which will keep the atmosphere above the body of the milk at a temperature equal to at least that of the body of the milk. If steam is used, the steam line shall be provided with a trap properly designed to avoid the discharge of water into the body of the milk.

POCKET TYPE APPARATUS

(Milk heated before entering holder)

(*a*) The apparatus shall be so designed as to be free from "cold pockets" or pipe sections, the milk in which will drop below the recorded temperature before discharge from the pocket.

(*b*) The influent and effluent manifolds shall each be provided with both recording and indicating thermometers. Indicating thermometers shall be accurate within 1° F. The indicating, and not the recording, thermometers shall be used as an index of temperature by the plant operator. Recording thermometers shall be checked daily by the plant operator and biweekly by the health officer.

(*c*) All influent and effluent fittings shall be so designed (leak-escape valves or other satisfactory solution) as not to permit any un-Pasteurized milk to enter the pocket during the holding period, or incompletely Pasteurized milk to enter the effluent manifold at any time.

(*d*) Lids of pockets must be kept closed during operation, and so designed that nothing on top thereof will drop into the pocket if open.

(*e*) Designs which permit foam formation, whether in large or small quantities, shall be equipped with a steam or hot-air device which will keep the atmosphere above the body of the milk at a temperature equal to at least that of the body of the milk. If steam

is used, the steam line shall be provided with a trap properly designed to avoid the discharge of water into the body of the milk.

(*f*) All effluent fittings shall be steam sterilized, either manually or automatically, immediately before the discharge of the Pasteurized milk.

CONTINUOUS-FLOW-TYPE APPARATUS

(*a*) No continuous-flow-type apparatus shall be used which has not been tested by the health officer or by other proper authority to determine the operating conditions which must be observed in order to insure the uniform application of the desired time and temperature.

(*b*) Influent and effluent piping shall each be provided with both recording and indicating thermometers. Indicating thermometers shall be accurate within 1° F. The indicating, and not the recording, thermometers shall be used as an index of temperature by the plant operator. Recording thermometers shall be checked daily by the plant operator, and biweekly by the health officer.

(*c*) The holder shall be free of any "cold pockets" or pipe sections, the milk in which will drop below the recorded temperature before discharge.

(*d*) All continuous flow apparatus shall be provided with thermostatic control, properly designed to maintain a uniform temperature, both in the milk and in the heating medium surrounding the milk.

Lest this paper be used as propaganda against Pasteurization, it is desired to state that, while testing-work thus far done by the Public Health Service has disclosed many defective types of apparatus, it has also disclosed that most of the defective types are being immediately redesigned as fast as the testing work discloses defects, and that testing work already done on improved designs has shown satisfactory results.

Furthermore, attention is called to the fact that, in most cases, the necessary modifications of apparatus now in use can be made in the field; that is, without the necessity for returning the apparatus to the factory.

It will be noted that the discussion in this paper is based upon the fact that practically all definitions of Pasteurization rest upon the acceptance of only one point upon the minimum lethal curve. The possibility must be anticipated, however, that other points on the curve may, in the future, receive wide acceptance, and that future definitions may need to be modified accordingly.

In conclusion, it is desired to acknowledge gratefully the assistance of Mr. George W. Putnam, Chief Bureau of Dairy Products, city of Chicago, and of Mr. Louis Shere, Assistant Director, Division of Dairy Products, with whom the subject matter of this paper was discussed, and who contributed valuable criticism. The photographic illustrations used in this paper were made by the Chicago Health Department.

EXTENT OF RURAL HEALTH SERVICE IN THE UNITED STATES, 1923-1927

By L. L. LUMSDEN, *Surgeon, United States Public Health Service*

According to data obtained by the Rural Sanitation Office of the Public Health Service from the health departments of the States, the following (Table 1) is a list, by States, of counties (or districts) in which the rural sections thereof at the beginning of the calendar years 1923, 1924, 1925, 1926, and 1927, respectively, were provided with local health service under the administration of whole-time county or (local) district health officers:

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*

1923	1924	1925	1926	1927
Baldwin. Barbour. Calhoun. Colbert. Covington. Dallas. Etowah. Houston. Jefferson. Lauderdale. Madison. Mobile. Montgomery. Morgan. Pike. Sumter. Talladega. Tuscaloosa. Walker.	Baldwin. Barbour. Calhoun. Colbert. Covington. Dallas. Escambia. Etowah. Franklin. Houston. Jefferson. Lauderdale. Limestone. Madison. Mobile. Montgomery. Morgan. Pike. Sumter. Talladega. Tuscaloosa. Walker.	Baldwin. Barbour. Calhoun. Colbert. Covington. Dallas. Escambia. Etowah. Franklin. Houston. Jefferson. Lauderdale. Limestone. Madison. Marengo. Marshall. Mobile. Montgomery. Morgan. Pike. Sumter. Talladega. Tuscaloosa. Walker.	Baldwin. Barbour. Calhoun. Coffee. Colbert. Covington. Dallas. Escambia. Etowah. Franklin. Houston. Jackson. Jefferson. Lauderdale. Lawrence. Lee. Limestone. Madison. Marengo. Marshall. Mobile. Montgomery. Morgan. Pike. Sumter. Talladega. Tuscaloosa. Walker.	Baldwin. Barbour. Calhoun. Chambers. Coffee. Colbert. Covington. Dallas. Escambia. Etowah. Franklin. Houston. Jackson. Jefferson. Lauderdale. Lawrence. Lee. Limestone. Madison. Marengo. Marshall. Mobile. Montgomery. Morgan. Pike. Sumter. Talladega. Tallapoosa. Tuscaloosa. Walker.
		ARIZONA		
		Cochise.	Cochise.	Cochise. Yuma.
		ARKANSAS		
			Garland. Jefferson. Pulaski.	Garland. Jefferson. Pulaski.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
		CALIFORNIA		
Los Angeles. Monterey. Orange. San Francisco.[1] San Luis Obispo.	Los Angeles. Monterey. Orange. San Joaquin. San Luis Obispo.	Los Angeles. Monterey. Orange. San Diego. San Joaquin. San Luis Obispo.	Los Angeles. Monterey. Orange. San Diego. San Joaquin. San Luis Obispo. Santa Barbara.	Los Angeles. Monterey. Orange. Riverside. San Diego. San Joaquin. San Luis Obispo. Santa Barbara. Yolo.
		COLORADO		
			Otero.	Otero.
		CONNECTICUT		
		Fairfield.[2]	Fairfield.[2]	Fairfield.[2]
		FLORIDA		
			Polk.	Manatee. Polk. Sarasota.
		GEORGIA		
Baldwin. Bartow. Clarke. Cobb. Decatur. Dougherty. Floyd. Fulton. Glynn. Hall. Laurens. Lowndes. Mitchell. Richmond. Sumter. Thomas. Troup. Walker.	Baldwin Bartow. Bibb. Clarke. Cobb. Decatur. Dekalb. Dougherty. Floyd. Glynn. Hall. Laurens. Lowndes. Mitchell. Richmond. Sumter. Thomas. Troup. Walker.	Baldwin. Bartow. Bibb. Clarke. Cobb. Decatur. Dekalb. Dougherty. Floyd. Glynn. Hall. Laurens. Lowndes. Miller. Mitchell. Richmond. Seminole. Sumter. Thomas. Troup. Walker.	Baker. Baldwin. Bartow. Bibb. Clarke. Cobb. Decatur. Dekalb. Dougherty. Floyd. Glynn. Grady. Hall. Laurens. Lowndes. Mitchell. Richmond. Sumter. Thomas. Troup. Walker. Ware.	Baker. Baldwin. Bartow. Bibb. Brooks. Clarke. Cobb. Decatur. Dekalb. Dougherty. Floyd. Glynn. Grady. Hall. Laurens. Lowndes. Mitchell. Richmond. Spaulding. Sumter. Thomas. Troup. Walker. Ware.
		ILLINOIS		
Morgan.	Morgan.	Cook. Crawford. Morgan. Sangamon.	Cook. Morgan. Sangamon.	Cook. Morgan. Sangamon.

[1] As San Francisco County is entirely urban, it should not have been included in 1923 and is omitted from the 1924, 1925, 1926, and 1927 lists.
[2] District.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
INDIANA				
Fulton.				
IOWA				
Dubuque.	Dubuque. Washington.	Dubuque. Washington.	Dubuque.	Dubuque.
KANSAS				
Butler. Cherokee. Ellis. Ford. Geary. Marion. Ottawa. Wabaunsee.	Butler. Cherokee. Ellis. Geary. Lyon. Marion. Ottawa. Sheridan.	Cherokee Geary. Lyon. Marion. Ottawa. Sheridan.	Butler. Coffey. Ellis. Geary. Jefferson. Lyon. Marion. McPherson. Ottawa. Phillips.	Butler. Coffey. Ellis. Geary. Jefferson. Lyon. Marion. Ottawa. Phillips.
KENTUCKY				
Boyd. Daviess. Fulton. Harlan. Jefferson. Johnson. Mason. Scott.	Bell. Boyd. Daviess. Fayette. Fulton. Jefferson. Johnson. Mason. Scott.	Boyd. Daviess. Fayette. Fulton. Jefferson. Johnson. Mason. Scott.	Boyd. Daviess. Fayette. Fulton. Jefferson. Johnson. Mason. Scott.	Boyd. Daviess. Fayette. Fulton. Jefferson. Johnson. Knott. Mason. Scott.
LOUISIANA [3]				
Beauregard. Caddo. De Soto. Natchitoches. Ouachita. Rapides. Washington.	Beauregard. Caddo. Claiborne. De Soto. Natchitoches. Ouachita. Rapides. St. Mary. Tangipahoa. Washington.	Beauregard. Caddo. Claiborne. De Soto. Natchitoches. Ouachita. St. Mary. Tangipahoa. Washington.	Caddo. Claiborne. De Soto. Lafourche. Natchitoches. Ouachita. Plaquemines. St. Mary. Tangipahoa. Washington. Webster.	Caddo. Claiborne. De Soto. Lafourche. Natchitoches. Ouachita. Plaquemines. St. Mary. Washington. Webster.
MAINE [2]				
Oldtown. Rumford. Sanford. Waterville. York.	Oldtown. Rumford. Sanford. Waterville. York.	Oldtown. Rumford. Sanford. Waterville. York.	Oldtown. Rumford. Sanford. Waterville. York.	Oldtown. Rumford. Sanford. Waterville. York.
MARYLAND				
Allegany. Montgomery.	Allegany. Frederick. Montgomery.	Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery.	Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery.	Allegany. Baltimore. Calvert. Carroll. Frederick. Montgomery.

[2] Districts. [3] Parishes.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
MASSACHUSETTS				
Cape Cod.[2]	Cape Cod.[2]	Cape Cod.[2]	Cape Cod[2]	Cape Cod.[2]
MINNESOTA				
	St. Louis.	St. Louis.	St. Louis.	St. Louis.
MISSISSIPPI				
Bolivar. Coahoma. Forrest. Harrison. Hinds. Jones. Lauderdale. Lee. Leflore. Marshall. Tallahatchie. Washington.	Bolivar. Coahoma. Forrest. Harrison. Hinds. Jones. Lauderdale. Lee. Tallahatchie. Washington.	Bolivar. Coahoma. Forrest. Hancock. Harrison. Jackson. Jones. Lee. Pearl River. Sharkey. Washington.	Bolivar. Coahoma Forrest. Hancock. Harrison. Hinds. Jackson. Jones. Lee. Leflore. Pearl River. Sharkey. Washington.	Bolivar. Clarke. Coahoma. Forrest. Hancock. Harrison. Hinds. Holmes. Jackson. Jones. Lamar. Lee. Leflore. Pearl River. Perry. Sharkey. Union. Washington.
MISSOURI				
Cape Girardeau. Dunklin. Gentry. Greene. Jasper. Monroe. New Madrid. Nodaway. Pettis. Polk. St. Francois.	Dunklin. Gentry. Greene. New Madrid. Nodaway. Pettis. Polk. St. Francois. St. Louis.	Dunklin. Gentry. Greene. New Madrid. Nodaway. Pettis. Polk. St. Francois. St. Louis.	Boone. Dunklin. Greene. Jackson. New Madrid. Nodaway. Pemiscot. Pettis. Polk. St. Francois. St. Louis.	Boone. Dunklin. Greene. Holt. Jackson. Marion. New Madrid. Nodaway. Pemiscot. Pettis. St. Francois. St. Louis.
MONTANA				
Cascade. Lewis and Clark. Missoula. Yellowstone.	Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.	Cascade. Lewis and Clark. Missoula.
NEW MEXICO				
Bernalillo. Chaves. Dona Ana. Eddy. San Miguel. Sante Fe. Union. Valencia.	Bernalillo. Chaves. Colfax. Dona Ana. Eddy. McKinley. San Miguel. Santa Fe. Union. Valencia.	Bernalillo. Chaves Colfax Dona Ana. Eddy. McKinley. San Miguel. Santa Fe. Union. Valencia.	Bernalillo. Chaves. Colfax. Dona Ana. Eddy. McKinley. Santa Fe. Union. Valencia.	Bernalillo. Chaves. Dona Ana. Eddy. McKinley. Santa Fe. San Miguel. Union. Valencia.

[2] Districts.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
		NEW YORK		
	Cattaraugus.	Cattaraugus.	Cattaraugus.	Cattaraugus.
		NORTH CAROLINA		
Bertie.	Beaufort.	Beaufort.	Beaufort.	Beaufort.
Bladen.	Bertie.	Bertie	Bertie.	Bertie.
Buncombe.	Bladen.	Bladen.	Bladen	Bladen.
Cabarrus.	Brunswick.	Brunswick.	Brunswick.	Brunswick.
Carteret.	Buncombe.	Buncombe.	Buncombe.	Buncombe.
Columbus.	Cabarrus.	Cabarrus.	Cabarrus.	Cabarrus.
Craven.	Columbus.	Columbus.	Columbus.	Carteret.
Cumberland.	Craven.	Craven.	Craven.	Columbus.
Davidson.	Cumberland.	Cumberland.	Cumberland.	Craven.
Durham.	Davidson.	Davidson.	Davidson.	Cumberland.
Edgecombe.	Durham	Durham.	Durham.	Davidson.
Forsyth.	Edgecombe.	Edgecombe.	Edgecombe.	Durham.
Granville.	Forsyth.	Forsyth.	Forsyth.	Edgecombe.
Guilford.	Granville.	Granville.	Granville.	Forsyth.
Halifax.	Guilford.	Guilford.	Guilford.	Granville.
Lenoir.	Halifax.	Halifax.	Halifax.	Guilford.
Mecklenburg.	Henderson.	Henderson.	Henderson.	Halifax.
New Hanover.	Hyde.	Hyde.	Johnston.	Henderson.
Northampton.	Lenoir.	Lenoir.	Lenoir.	Johnston.
Pitt.	Mecklenburg.	Mecklenburg.	Mecklenburg.	Lenoir.
Robeson.	New Hanover.	New Hanover.	New Hanover.	Mecklenburg.
Rowan.	Northampton.	Northampton.	Northampton.	Nash.
Sampson.	Pamlico.	Pamlico.	Pamlico.	New Hanover.
Surry.	Pitt.	Pitt.	Pitt	Northampton.
Vance.	Robeson.	Richmond.	Richmond.	Pamlico.
Wake.	Rowan.	Robeson.	Robeson.	Pitt.
Wayne.	Sampson.	Rowan.	Rowan.	Richmond.
Wilkes.	Surry.	Rutherford.	Rutherford.	Robeson.
Wilson.	Vance.	Sampson.	Sampson.	Rowan
	Wake.	Surry.	Surry.	Rutherford.
	Wayne.	Vance.	Vance.	Sampson.
	Wilkes.	Wake.	Wake.	Surry
	Wilson.	Wayne.	Wayne.	Vance.
		Wilkes.	Wilkes.	Wake.
		Wilson.	Wilson.	Wayne.
				Wilkes.
				Wilson.
		OHIO		
Allen.	Allen.	Allen.	Allen.	Allen.
Ashtabula.	Ashtabula.	Ashtabula.	Ashtabula.	Ashtabula.
Auglaize.	Athens.	Athens.	Athens.	Belmont.
Belmont.	Auglaize.	Belmont.	Belmont.	Butler.
Butler.	Belmont.	Butler.	Butler.	Clermont.
Champaign.	Butler.	Clermont.	Clermont.	Clinton.
Clermont.	Clermont.	Clinton.	Clinton.	Columbiana.
Clinton.	Clinton.	Columbiana.	Columbiana.	Coshocton.
Columbiana.	Columbiana.	Coshocton.	Coshocton.	Crawford.
Coshocton.	Coshocton.	Crawford.	Crawford.	Cuyahoga.
Crawford.	Crawford.	Cuyahoga.	Cuyahoga.	Darke.
Cuyahoga.	Cuyahoga.	Delaware.	Delaware.	Delaware.
Erie.	Erie.	Erie.	Erie.	Erie.
Hamilton.	Geauga.	Fayette.	Fayette.	Fayette.
Hocking.	Hamilton.	Franklin.	Franklin.	Geauga.
Huron.	Hancock.	Geauga.	Geauga.	Hamilton.
Lake.	Hocking.	Hamilton.	Hamilton.	Hancock.
Lorain.	Huron.	Hancock.	Hancock.	Hocking.
Lucas.	Lake.	Hocking.	Hocking.	Huron.
Madison.	Lorain.	Huron.	Huron.	Jefferson.
Mahoning.	Lucas.	Lake.	Jefferson.	Lake.
Marion.	Mahoning.	Lorain.	Lake.	Lorain.
Miami.	Marion.	Lucas.	Lorain.	Lucas.
Monroe.	Meigs.	Mahoning.	Lucas.	Mahoning.
Montgomery.	Mercer.	Marion.	Mahoning.	Marion.
Morrow.	Miami.	Meigs.	Marion.	Meigs.
Muskingum.	Montgomery.	Mercer.	Meigs.	Mercer.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
		OHIO—continued		
Paulding. Perry. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Morrow. Muskingum. Paulding. Perry. Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Miami. Montgomery. Morrow. Muskingum. Paulding. Perry. Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Mercer. Miami. Montgomery. Morrow. Muskingum. Perry. Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.	Miami. Montgomery. Morrow. Muskingum. Perry. Preble. Richland. Ross. Sandusky. Scioto. Seneca. Shelby. Stark. Summit. Trumbull. Tuscarawas. Union. Washington. Wayne. Wood.
		OKLAHOMA		
Ottawa.	Ottawa.	Carter. Le Flore. Muskogee. Oklahoma. Pittsburg.	Carter. Le Flore. McCurtain. Muskogee. Oklahoma. Okmulgee. Ottawa. Pittsburg.	Carter. Kay. Le Flore. McCurtain. Muskogee. Oklahoma. Okmulgee. Ottawa. Pittsburg.
		OREGON		
Coos.	Coos.	Clackamas. Coos. Douglas. Jackson. Klamath.	Clackamas. Coos. Douglas. Jackson. Klamath.	Clackamas. Coos. Douglas. Jackson. Klamath.
		SOUTH CAROLINA		
Charleston. Cherokee. Darlington. Fairfield. Greenville. Newberry. Orangeburg.	Aiken. Anderson. Charleston. Cherokee. Dillon. Fairfield. Greenville. Newberry. Orangeburg.	Aiken. Anderson. Beaufort. Charleston. Cherokee. Colleton. Darlington. Dillon. Fairfield. Georgetown. Greenville. Marion. Newberry. Orangeburg.	Aiken. Anderson. Beaufort. Charleston. Cherokee. Colleton. Darlington. Dillon. Fairfield. Georgetown Greenville. Greenwood. Marion. Newberry. Orangeburg. Spartanburg.	Aiken. Anderson. Beaufort. Charleston. Cherokee. Darlington. Dillon. Fairfield. Georgetown. Greenville. Greenwood. Horry. Marion. Newberry. Orangeburg. Spartanburg.
		SOUTH DAKOTA		
Brown.	Brown.	Brown. Pennington. Yankton.	Brown. Pennington. Yankton.	Brown. Pennington.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
		TENNESSEE		
Davidson. Gibson. Montgomery. Roane. Williamson.	Blount. Davidson. Gibson. Montgomery. Obion Roane. Sevier. Williamson	Blount. Davidson. Gibson. Montgomery. Obion. Roane. Rutherford. Sevier. Williamson.	Blount. Davidson. Dyer. Gibson. Hamilton. Montgomery. Obion. Roane Rutherford. Sevier. Weakley. Williamson.	Blount. Davidson. Dyer. Gibson Hamilton. Lauderdale Montgomery. Obion. Roane Rutherford. Sevier. Shelby. Weakley. Williamson.
		TEXAS		
Cherokee. Dallam. Dallas. Hidalgo. Jefferson. Tarrant.	Dallam. Hidalgo. Jefferson. Red River. Tarrant. Washington.	Falls. Hidalgo. Nueces. Tarrant.	Cameron. Hidalgo. Jefferson. McLennan. Tarrant.	Cameron Hidalgo. Jefferson. McLennan. Tarrant
		UTAH		
Weber.	Weber.	Davis. Weber.	Davis. Weber.	Box Elder. Davis. Morgan. Summit. Wasatch. Weber
		VERMONT [1]		
First. Second. Third. Fourth Fifth. Sixth Seventh. Eighth. Ninth. Tenth.				
		VIRGINIA		
Albemarle. Arlington. Augusta. Fairfax. Halifax. Nansemond. Norfolk. Russell. Wise.	Accomac. Albemarle. Arlington. Augusta. Fairfax. Halifax. Henrico. James City. Loudoun. Nansemond. Norfolk. Princess Anne. Russell. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Halifax. Henrico. Isle of Wight. James City. Nansemond. Northampton. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Halifax. Henrico. Isle of Wight. James City. Nansemond. Northampton. Sussex. Wise.	Accomac. Albemarle. Arlington. Augusta. Brunswick. Fairfax. Halifax. Henrico. Isle of Wight. James City. Nansemond. Northampton. Southampton. Sussex. Wise.

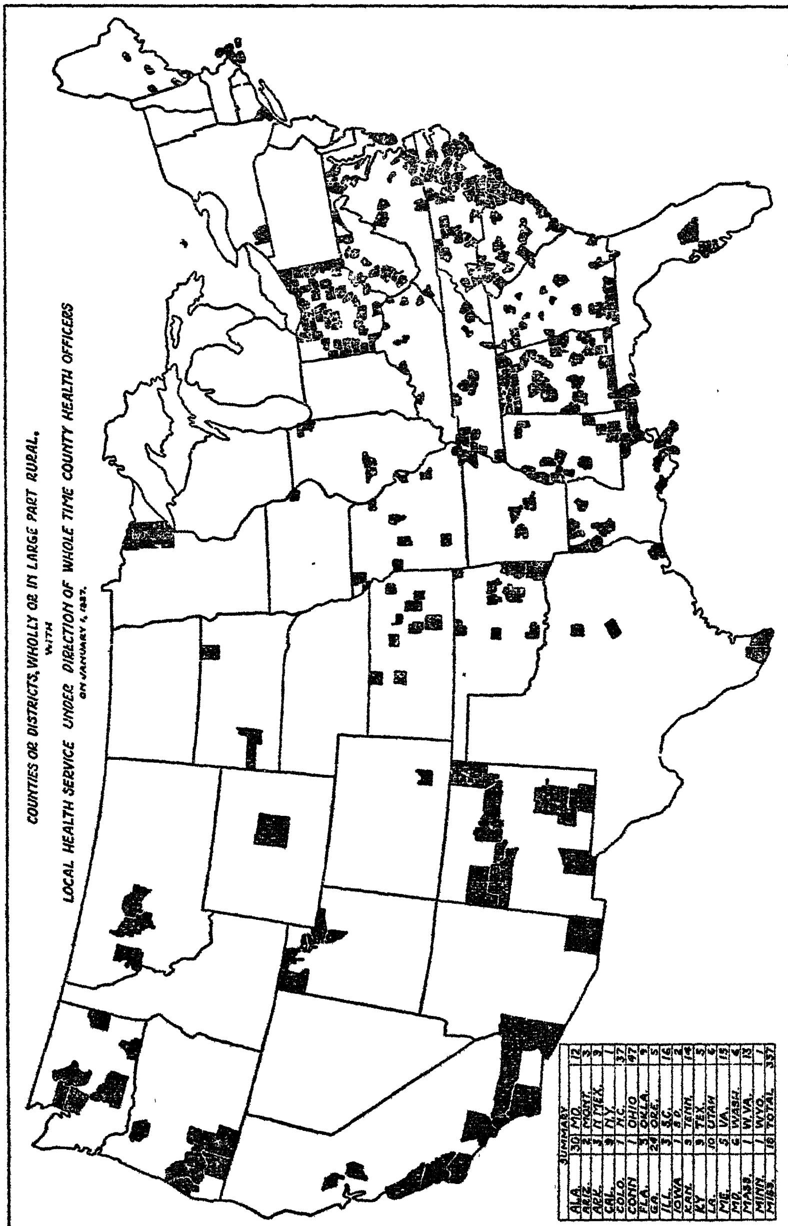
[1] Districts.

TABLE 1.—*List of counties or districts in which, as of January 1, 1923, 1924, 1925, 1926, and 1927, respectively, rural sections were provided with health service under whole-time local health officers*—Continued

1923	1924	1925	1926	1927
WASHINGTON				
Chelan. King. Spokane. Yakima.	Chelan. King. Spokane. Walla Walla. Yakima.	Chelan King. Spokane. Walla Walla. Yakima.	Chelan. King. Walla Walla. Yakima.	Chelan. King. Snohomish. Spokane. Walla Walla. Yakima.
WEST VIRGINIA				
Logan. Marion. Mingo. Preston.	Hancock. Harrison. Logan. Marion. Preston. Taylor.	Gilmer. Hancock. Harrison. Logan. Marion. Marshall. Preston. Taylor.	Gilmer. Hancock. Harrison. Logan. Marion. Marshall. Preston. Roane.	Boone. Brooke. Gilmer. Hancock. Harrison. Kanawha. Logan. Marion. Marshall. Ohio. Preston. Roane. Wood.
WYOMING				
	Natrona.	Natrona.	Natrona.	Natrona.

Résumé of Table 1

State	Number of counties Jan. 1— 1923	1924	1925	1926	1927	Increase or decrease in 1923	Increase or decrease in 1924	Increase or decrease in 1925	Increase or decrease in 1926
Alabama	19	22	24	28	30	+3	+2	+4	+2
Arizona	0	0	1	1	2		+1		+1
Arkansas	0	0	0	3	3			+3	
California	4	5	6	7	9	+1	+1	+1	+2
Colorado	0	0	0	1	1			+1	
Connecticut	0	0	1	1	1		+1		
Florida	0	0	0	1	3			+1	+2
Georgia	18	19	21	22	24	+1	+2	+1	+2
Illinois	1	1	4	3	3		+3	−1	
Indiana	1	0	0	0	0	−1			
Iowa	1	2	2	1	1	+1		−1	
Kansas	8	8	6	10	9		−2	+4	−1
Kentucky	8	9	8	8	9	+1	−1		+1
Louisiana	7	10	9	11	10	+3	−1	+2	−1
Maine	5	5	5	5	5				
Maryland	2	3	6	6	6	+1	+3		
Massachusetts	1	1	1	1	1				
Minnesota	0	1	1	1	1	+1			
Mississippi	12	10	11	13	18	−2	+1	+2	+5
Missouri	11	9	9	11	12	−2		+2	+1
Montana	4	3	3	3	3	−1			
New Mexico	8	10	10	9	9	+2		−1	
New York	0	1	1	1	1	+1			
North Carolina	29	33	35	35	37	+4	+2		+2
Ohio	42	45	47	47	47	+3	+2		
Oklahoma	1	1	5	8	9		+4	+3	+1
Oregon	1	1	5	5	5		+4		
South Carolina	7	9	14	16	16	+2	+5	+2	
South Dakota	1	1	3	3	2		+2		−1
Tennessee	5	8	9	12	14	+3	+1	+3	+2
Texas	6	6	4	5	5		−2	+1	
Utah	1	1	2	2	6		+1		+4
Vermont	10	0	0	0	0	−10			
Virginia	9	14	13	14	15	+5	−1	+1	+1
Washington	4	5	5	4	6	+1		−1	+2
West Virginia	4	6	8	8	13	+2	+2		+5
Wyoming	0	1	1	1	1	+1			
Total	230	250	280	307	337	+20	+30	+27	+30



SUMMARY			
ALA.	30	MO.	12
ARIZ.	2	MONT.	3
ARK.	3	N MEX.	3
CAL.	9	N.Y.	1
COLO.	1	N.C.	37
CONN	1	OHIO	47
FLA.	3	OKLA.	9
GA.	24	ORE.	5
ILL.	3	S.C.	16
IOWA	1	S D.	2
KAN.	9	TENN.	14
KY	9	TEX.	5
LA.	10	UTAH	6
ME.	5	VA.	15
MD.	6	WASH.	6
MASS.	1	W.VA.	13
MINN.	1	WYO.	1
MISS.	16	TOTAL	337

The accompanying map shows the counties or districts in the United States in which, as of January 1, 1927, the rural sections thereof were provided with local health service under whole-time local (county or district) health officers.

The net gain of 30 counties in 1926 is cause for encouragement to all persons interested in this much-needed, economical, and effective development for the conservation and promotion of the health of the people of the United States. Most of the increases during the year were made in States in which the respective State health departments, with the cooperation of the United States Public Health Service or the International Health Board, or both, were enabled to give encouragement, technical advice, and financial assistance to county or district health departments

Of the 337 counties or districts with local health service under whole-time local (county or district) health officers at the beginning of the present calendar year, 293, or 87 per cent, are receiving financial assistance for the support of their local health service from one or more of the following agencies: The State board of health, the United States Public Health Service, the International Health Board, the Children's Bureau of the United States Department of Labor.

Without assistance from outside agencies, local governments of rural communities (counties, towns, townships, or districts) in general are not disposed to appropriate adequately for the support of efficient, whole-time, local health service. Some local governments even when offered such assistance decline to appropriate their part of the budget for the service; but, according to all the evidence, development in this vitally important field of general welfare could be greatly increased by provision (which could be made at comparatively small governmental cost) to enable the State health departments and the Federal health service to offer to counties now willing to accept, and to those which would soon become willing to accept, adequate technical advice along with financial cooperation on a basis of $1 of Federal money and $3 of State money to meet four or more dollars of county money.

As health conditions in a rural community in one State influence those in other communities in that State and in other States, it seems that both the State Governments and the Federal Government may be properly concerned with the development and maintenance of efficient local health service throughout our extensive rural area. The local health service in doing its work efficiently necessarily performs duties, such as the collection of morbidity and mortality statistics and the carrying out of measures which prevent the spread of infection in intercounty and interstate traffic, for which both the State Governments and the Federal Government have a degree of definite responsibility. Therefore, if such duties can be performed more economically by the local health service than by separate or

combined specialized field forces from the State and the Federal health services, allotment of money to the local health department by the State Government and the Federal Government might be construed not as State and Federal Government aid but as payment for services on good business principles.

At the rate of progress made since 1919,[4] it will take about 85 years for reasonably adequate whole-time local rural health service to be extended to all communities of the United States in which such service is needed. To augment existing factors, or to bring into operation additional factors to speed up production, seems critically important.

Experience indicates that the proper foundation for rural health service in the United States is the county health department under the direction of the qualified whole-time county health officer. It becomes more and more evident to those with practical experience in the public health field that agencies concerned with the promotion of specialized health activities, such as typhoid fever prevention, hookworm control, tuberculosis prevention, malaria control, venereal disease prevention, or child and maternity hygiene, can perform most effectively and economically by dovetailing their specific activities in with and making them a part of a well-balanced, comprehensive program of local official health service under the immediate direction of qualified, whole-time local health officers.

The present budgets for the support of the health service covering the rural communities and some of the incorporated cities and towns in the counties and districts designated in the 1927 column of Table 1 total $4,873,168.17. Of the total local population of 12,732,233 receiving this service, 4,176,333, or 32.8 per cent, are urban. Therefore, about $3,274,769.01 of the total investment for the local health service in these 337 projects will be expended this year for strictly rural health service.

Reasonably adequate whole-time rural health service throughout this country would cost about $20,000,000 a year. Apart from the loss in human life, human health, and human happiness—which can not be measured—our national economic loss annually in wage-earnings and in other items incident to preventable sickness because of lack of efficient county health service is estimated at over $1,000,000,000. Money invested for well-directed whole-time county health service yields to the average local taxpaying citizen an annual dividend in dollars and cents ranging under different local conditions from 100 to 3,000 per cent. A claim made several years ago, and not yet successfully challenged, is that the dollar invested for well-directed comprehensive whole-time county health service yields to

[4] Reprint No. 921, p. 7, from the Public Health Reports, vol. 39, No. 20, May 16, 1924, pp. 1127–1137

the public welfare more than any other dollar obtainable by taxation of the people can be made to yield in normal times.

Table 2 presents, by States, the percentage of rural population having local health service under the direction of whole-time local (county or district) health officers at the beginning of 1927.

TABLE 2.—*Percentage of rural population having, on January 1, 1927, local health service under whole-time local (county or district) health officers*

State	Rural population (Census 1920)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers	State	Rural population (Census 1920)	Rural population with local health service under direction of whole-time health officers	Percentage of rural population with local health service under direction of whole-time health officers
Alabama	1,838,857	982,684	53.44	Nevada	62,153	0	0
Arizona	216,635	38,011	17.55	New Hampshire	163,322	0	0
Arkansas	1,461,707	85,414	5.84	New Jersey	680,964	0	0
California	1,095,132	327,377	29.89	New Mexico	295,390	104,176	35.27
Colorado	486,370	13,913	2.87	New York	1,795,383	39,708	2.21
Connecticut	444,292	11,475	2.58	North Carolina	2,068,753	1,020,067	49.31
Delaware	102,236	0	0	North Dakota	558,633	0	0
Florida	612,645	42,240	6.89	Ohio	2,082,258	1,242,507	59.67
Georgia	2,167,973	443,747	20.93	Oklahoma	1,488,803	263,767	17.72
Idaho	312,829	0	0	Oregon	392,370	80,896	20.61
Illinois	2,082,127	144,887	6.96	Pennsylvania	3,112,202	0	0
Indiana	1,447,535	0	0	Rhode Island	15,217	0	0
Iowa	1,528,526	19,121	1.25	South Carolina	1,389,737	593,360	42.70
Kansas	1,151,293	135,547	11.77	South Dakota	534,675	21,915	4.10
Kentucky	1,783,037	154,603	8.67	Tennessee	1,726,659	422,891	23.94
Louisiana	1,170,346	234,457	20.03	Texas	3,150,539	136,031	4.32
Maine	463,445	25,631	5.47	Utah	233,812	47,251	20.21
Maryland	580,239	225,038	38.78	Vermont	242,452	0	0
Massachusetts	202,108	16,562	8.19	Virginia	1,635,203	347,404	21.25
Michigan	1,426,852	0	0	Washington	607,886	203,592	33.49
Minnesota	1,335,532	50,898	3.81	West Virginia	1,091,694	331,727	30.30
Mississippi	1,550,497	399,690	25.78	Wisconsin	1,387,499	0	0
Missouri	1,817,152	313,511	17.25	Wyoming	137,054	3,188	2.33
Montana	376,878	32,711	8.68				
Nebraska	891,066	0	0	Total	51,406,017	8,556,000	16.64

The fact that over 83 per cent of our rural population is as yet unprovided with official local health service approaching adequacy is of utmost seriousness. It means that we are permitting a sacrifice of the health and lives and the material resources of many of our people every year—a sacrifice which is needless because preventable, and preventable by measures readily within our means and demonstrated to be in the highest sense economical. It clearly deserves the prompt and vigorous attention of all who are genuinely interested in our national welfare.

AVERAGE AGE AT DEATH IN WISCONSIN

The Wisconsin State Board of Health has recently prepared a chart which shows the average age at death in Wisconsin for each calendar year from 1908 to 1925, inclusive. The information given

on the chart shows the average age at death as presented in the following table:

Year	Average age at death
1908	40.8
1909	40.5
1910	40.0
1911	41.5
1912	42.4
1913	42.3
1914	42.2
1915	45.2
1916	44.1
1917	44.8
1918	39.4
1919	43.8
1920	43.8
1921	45.3
1922	47.0
1923	47.2
1924	48.2
1925	48.8

It will be noted from the above table that the severe epidemic of influenza which occurred in 1918 had a very material effect in shortening the average length of life in Wisconsin. The effect of influenza continued during the years 1919 and 1920, in both of which years the disease continued to prevail above its normal expectancy throughout the United States.

In commenting upon the data shown above, an official of the State board of health said that one of the factors causing increased longevity during the period was better control of communicable diseases. This control was indicated in the information given regarding the decrease of deaths from various diseases. These decreases were given as follows: Typhoid fever, 95 per cent; meningitis, 73 per cent; measles, 47 per cent; diphtheria, 58 per cent; scarlet fever, 50 per cent; infant mortality (under one year of age), 46 per cent; whooping cough, 43 per cent; tuberculosis, 42 per cent.

In contrast to these decreases that occurred in the case of communicable diseases, there was noted an increase in the number of deaths from three of the principal causes of death at the present time. These increases were as follows: Nephritis, 12 per cent; organic heart disease, 49 per cent; cancer, 42 per cent.

The State board of health seems quite justified in the closing statement shown on this chart, which reads as follows:

"Expenditures for public health yield a larger return than any other investment."

FRENCH SCIENTISTS TO HONOR THE MEMORIES OF VULPIAN AND PINEL

In connection with the annual meeting of the Biological Society and the French Congress on Neurology and Psychiatry, to be convened in Paris from May 27 to June 2, 1927, special ceremonies will

be held to commemorate the centennial of the birth of Vulpian, the great physiologist, and that of the death of Pinel, famous especially for his clinical lectures and his introduction of the modern humane method of treatment of the insane.

Through the Department of State, the ambassador of the French Republic has extended an invitation from the Medico-Psychological Society of France, to the universities and scientific societies of the United States to send delegates to these commemorative exercises The note from the ambassador follows:

On the occasion of the annual meeting of the French Congress on Neurology and Psychiatry, the Medico-Psychological Society of France has decided to commemorate, on May 30 and 31 next, in Paris, the centennial of the death of Pinel and that of the birth of Vulpian.

A certain number of physicians of all countries have already shown a disposition to come to Paris in their personal capacity to commemorate the work of those two great French physiologists; but it occurred to the French Government that it might be interesting further to move the sending of official delegations from academies, faculties, and learned societies in foreign countries.

I am, therefore, instructed by M. Briand to forward to Your Excellency the invitation of the Medico-Psychological Society of France to the celebration of the dual centennial and to ask that you kindly see that it reaches the learned bodies of the United States.

I should be particularly thankful to you if you would kindly let me know as soon as possible the names of those whom they may choose as their representatives.

POPULATION OF HOSPITALS FOR THE INSANE

Data for November, 1926

Reports for the month of November, 1926, were received from 151 institutions for the care of the insane.

There was an increase in the number of patients during the month of 413 or 0.20 per cent. The number in the hospitals increased 0.18 per cent, and the number on parole or otherwise absent from the institutions increased 0.47 per cent.

First admissions constituted 78.15 per cent of the total admitted during the month; readmissions, 16.89 per cent, and 4.96 per cent of the total admitted were transfers or not accounted for.

Of the patients discharged, 25.47 per cent were recorded as recovered; 50.36 per cent as improved; 18.05 per cent as unimproved; 4.29 per cent as without psychosis; and 1.83 per cent as otherwise discharged or not accounted for.

There were 1,067 males per thousand females at the close of the month.

The patients on parole on November 30 constituted 8.10 per cent of the total.

During November there were 1,481 deaths of patients of the hospitals reporting, which gives an annual death rate of 85.57 per thousand under treatment.

Movement of patient population in 151 hospitals for the care of the insane during November, 1926

Number of institutions included:	
Public	123
Private	28
Total	151
Patients on books Nov. 1, 1926:	
In hospitals	189, 721
On parole	16, 669
Total	206, 390
Admitted during November:	
First admissions	3, 280
Readmissions	709
Admitted by transfer	203
Not accounted for	5
Total received during the month	4, 197
Total on books during the month	210, 587
Discharged during November:	
As recovered	529
As improved	1, 046
As unimproved	375
As without psychosis	89
Not accounted for	2
Otherwise discharged	36
Total discharged during November	2, 077
Transferred	226
Died	1, 481
Total discharged, transferred, and died during November	3, 784
Patients on books Nov. 30, 1926:	
In hospitals	190, 056
On parole	16, 747
Total	206, 803
Male	106, 733
Female	100, 070

PUBLIC HEALTH ENGINEERING ABSTRACTS

Comfort stations in Cook County Forest Preserve District. George Elliot Perry. *Engineering News-Record,* vol. 97, No. 25, December 16, 1926, pp. 996–997. (Abstract by G. H. Hazlehurst.)

This article describes 50 comfort stations built in 1922 at a cost of $1,500 each in the Forest Preserve District of Cook County, Ill. The estimated number of users is 7,500,000 per year. The stations are hexagonal in plan, about 12 feet in diameter, and contain five nonflushing seats, each erected directly above a vault 6 feet square and 8 feet deep. On one side of the main vault there is a smaller vault which provides treatment for such overflow as may be caused by displacement. In each compartment are "colloiders" or aerators, provided for the purpose of insuring the presence of dissolved oxygen in the tank liquid at all times. Air was supplied under 3 pounds pressure by air pump actuated by windmills. After contact with the sewage it escaped through a central stack. The only water supplied was from the run-off of the roof which, during dry periods, was not always adequate.

It is stated that under normal conditions no odor developed, the sludge was cleaned out once a year, was inodorous, and adapted to use as lawn fertilizer, and the effluent was odorless and contained sufficient dissolved oxygen to preclude its causing a nuisance when entering a surface ditch.

On holidays some of the stations were overloaded and some objection from odors arose. Rubbish thrown in the vault endangered the air-distributing apparatus. A new design enlarges the capacity from 50 cubic feet to 250 cubic feet per seat. A new type of nonclogging aerator has been designed. Where water under pressure is available, a small hydraulically operated air compressor will be used, actuated by a stream $\frac{1}{64}$ inch in diameter. The central vent stack will be omitted, as it is considered unnecessary.

The system has been patented in the United States and foreign countries.

Superchlorination Method of Taste Destruction. Norman J. Howard and Rudolph E. Thompson. *Water Works (Engineering & Contracting),* vol. 65, No. 12, December, 1926, pp. 596–602. (Abstract by C. C. Ruchhoft.)

Causes producing taste in the Toronto water have been studied for a number of years. The "taste" periods occur most frequently during the spring and fall, and the periods of longest duration usually follow storms on Lake Ontario. It is suggested that, while the taste is often caused by substitution products in chlorinated water by phenol and cresol groups, organic matter may form phenoloid bodies and cause taste. Tastes were produced with chlorine doses from 0.19 to 0.68 p. p. m. after dechlorination; but with doses from 0.77 to 1.26 p. p. m., taste disappeared after dechlorination. The destructive distillation derivatives of coal which produce tastes were phenol, ortho-, meta-, and para-cresol, xylenol, and anisole. The distillation method for the determination of phenols in raw water, after intensive trial, did not prove sensitive enough to use as an index of phenol pollution. Twenty-eight coal derivatives were examined and it was impossible to differentiate between the taste and nontaste producing substances with the Folin-Dennis reagent. Similar observations were made with the Fox and Gauge reagents, and it was concluded that colorimetric tests for determining taste-producing substances were of limited value.

The method suggested for destroying taste consisted of treating the filtered water with 1.0 to 1.25 p. p. m. of chlorine and after a suitable contact period dechlorinating with sulphur dioxide. Experiments showed that superchlorination, with a short contact period, was not effective in destroying the taste. The

time of contact necessary to destroy taste with superchlorination and dechlorination varied with the concentration of the taste-producing substance and was greater for phenol than ortho-cresol. Using 1.25 p. p. m. of chlorine, the contact time necessary to destroy taste varied from 0.5 hours for 0.005 p. p. m. of phenol to 7 hours for 0.111 p. p. m. of phenol. Increasing the chlorine dosage reduced the contact time materially. An excess of sulphur dioxide is necessary to remove all trace of chlorine, but overdosing with sulphur dioxide may be prevented by leaving a slight residual chlorine in the water.

The superchlorination process was tried on 70,000,000 gallons of water per day for 10 days in September with complete success. During this time the island supply which did not receive the treatment developed pronounced tastes. It was found during these tests that, under heavy discharge conditions, sulphur dioxide requires more heat than chlorine to maintain cylinder pressure.

The authors also point out that acid and alkaline waters are least liable to taste and that the estimation of residual chlorine by the o-tolidine method should not be made in direct sunlight on account of its interference with color production.

Sterilization of Municipal Water Supply at Horton, Kans., by Ultra-Violet Rays. N. T. Veatch, jr. *American City*, vol. 36, No. 3, March, 1927, pp. 306–308. (Abstract by Chas. R. Cox.)

The city of Horton, with a population of 4,000, has recently completed a rapid sand filtration plant of conventional design, with the exception that the filtered water is treated by exposure to ultra-violet rays. This treatment was selected because cheap electrical current was available. A table is given showing the results of the bacteriological examination of 19 groups of samples of water collected during a period of about 5 months. Organisms of the colon group were present in 10 c. c. portions of the filtered water on only one occasion during the period, and the exposure of the filtered water to ultra-violet rays destroyed these organisms, thus resulting in the production of tap water which did not contain these organisms where the various samples were collected.

The ultra-violet ray apparatus consists of 3 R. U. V. units connected in series, having a capacity of 20,000 gallons per hour. The current consumption is 11.25 amperes; the operating voltage was not given.

No Agitators in this Filter Plant Design. C. T. Hough, city engineer, Lawrence, Kans. *Water Works Engineering*, vol. 80, No. 6, March 16, 1927, pp. 347–348. (Abstract by William L. Havens.)

The water-purification plant at Lawrence, Kans., was originally designed for a softening and filtration plant for well water, but it was found necessary to resort to river water soon after the plant was constructed. This change of source of supply caused the existing settling basins to be of insufficient capacity and of a design unsuited for clarifying the muddy river water. New settling basins have just been completed and new intake and flow lines are under construction. The present intakes, consisting of 16-inch universal cast-iron pipe lines extending from the intake pier in the middle of the Kaw River to the low-service pit, have settled so that the joints are partially opened and excessive quantities of mud are admitted. The new intake consists of a line of 20-inch bell and spigot cast-iron pipe, hung by round U bolts to cross members which are carried on wood piles.

No mechanical agitators are used in connection with the coagulation basins, but the water enters near the bottom of a hoppered bottom plain sedimentation basin designed to provide a retention period of five and one-half hours. The water then discharges from this basin over a weir into a collecting trough and thence

into the dosing chamber of the mixing wells. Two dry-feed machines, located directly over the dosing chamber, feed the lime and alum to the water. From the dosing chamber the water enters the mixing wells through openings near the bottom of the wells, which are so designed as to cause the water to maintain a spiral action upward to the mouth of a vertical downtake pipe which leads to the reaction basin. This basin is provided with baffles for the purpose of eliminating cross currents and lengthening the flow through the basin. From the reaction basin the water enters a distributing flume extending the full width of the coagulation basin and is discharged therefrom through a series of vertical and horizontal slots to the coagulation basin. The coagulation basin provides a retention period of 9½ hours, the lime reaction basin 2½ hours, and the settling basin 17 hours. The roughing filters consist of two units designed to operate at a rate of 4 gallons per square foot per minute. The lime and alum coagulation basins are each provided with mechanical agitators. The filter beds consist of four units, each having a capacity of 750,000 gallons per 24 hours and are provided with Wheeler type bottoms. The filters are washed with filtered water from five wooden storage tanks located on the third floor of the head house, each tank having a capacity of about 8,000 gallons. The clear well is located directly below the pipe gallery and filters and has a capacity equivalent to three and one-half hours' retention. Since there is no collecting pipe for the filter effluent, the water is chlorinated on the suction line from the clear well to the pump. Crank and flywheel pumping engines are used for the high-service pumping equipment, steam being supplied by two 150-horsepower return tubular boilers. As a precaution against breakdown of supply of current for the low-service pumps, the layout also includes a uniflow engine, direct connected to a 100-kilowatt alternating-current generator. It is expected that the new installation will eliminate the trouble which has been experienced in the past due to high turbidities in the river water.

Typhoid Epidemic Starts Water Improvements. W. E. MacDonald, water works engineer, Ottawa, Canada. *Water Works Engineering*, vol. 80, No. 6, March 16, 1927, pp. 343–344 and 368. (Abstract by William L. Havens.)

The city of Ottawa has, since 1872, taken its water supply from the Ottawa River. The original pumping station was operated by water power derived from two power channels furnishing water to the turbines under a head of 31 feet. The point of intake was located in the center of the river about 1½ miles upstream from the pumping station. The pipe line leading to the pumping station was originally a 30-inch wood-stave pipe, but this was later replaced by two steel lines, one 40 inches in diameter having standard ball joints and the other 42 inches in diameter and constructed with corrugated-steel sleeves. This plan was enlarged at various intervals from 1874 to 1914 to a total rated capacity of 26,000,000 gallons per day. In 1912 there occurred a very serious epidemic of typhoid fever and investigations disclosed that the cause was the defective condition of the joints of the 42-inch concrete and steel intake pipes which permitted the entry of raw sewage from Nepean Bay and the new aqueduct. In order to correct these conditions, new cast-iron pipe sewers with calked lead joints were constructed to replace existing sewers along the pipe line, the water-intake line was abandoned and replaced by a new line of 42-inch lock-bar steel pipe, and a new low-lift pumping station was constructed at the site of the intake. This new pumping station permitted the water to be conveyed under pressure to the main pumping station and thereby prevented the entrance of any foreign water.

Many reports upon proposed water supplies for the city of Ottawa have been prepared; but these projects have all been defeated by the electorate. Most of

them contemplated the development of a new supply in the Gatineau Lakes and involved the expenditure of several million dollars. In May, 1915, Mr. J. B. McRae submitted plans for the erection of a new pumping station at Lemieux Island and the building of a new concrete bridge from the island to the mainland on which were supported two 51-inch steel lock-bar pipes. These improvements included a new intake which was located on the west side of the island immediately below Remic's Rapids. The high-service pumps consist of two Escher Wyss 2-stage 26-inch centrifugal pumps having a capacity of 20,000,000 gallons per 24 hours when operating against a total head of 280 feet. The electric power is obtained from the plants of the Ottawa & Hull Power Co., and is supplied over three separate and independent transmission lines at a price of $13.50 per horsepower on the switchboard of the pumping station. In the substation are installed three Westinghouse 1,500-kilowatt-ampere transformers for operation of the high-lift pumping units and three 75-kilowatt-ampere transformers for the low-lift units in addition to the lighting transformers. The pipe lines consist of two steel lock-bar pipes 18,100 feet in length, seven-sixteenths inch in thickness, and 51 inches in diameter, furnished in 30-foot lengths. A septic tank was constructed on the island to take care of the sewage from the buildings. The water is not filtered but is treated by the application of chloramine. The bleach is mixed as a solution containing 0.3 to 0.6 per cent of available chlorine and is discharged from orifice boxes to water injectors which feed it into the suction well through a perforated pipe. Numerous booster pumping stations have been constructed in order to increase pressures in the higher business areas of the city.

Control of Bathing in New Jersey Water Supplies Effected. Anon. *Engineering News Record,* vol. 97, No. 25, December 16, 1926, p. 1012. (Abstract by Stephen De M. Gage.)

After long agitation the New Jersey State Department of Health recently added five sections to the State Sanitary Code prohibiting bathing in any river, brook, stream, lake, pond, or reservoir used as a source of public water supply, or the maintenance of any bathhouse pavilion or public place of entertainment adjacent thereto, if such bathing or maintenance pollutes or tends to the pollution of the water. Enforcement to be by inspectors designated by State health department as its agents but paid by municipality or water company.

Good Air—What It Is and How To Get It. Earle B. Phelps. *Public Health News,* New Jersey State Board of Health, vol. 12, No. 2, January, 1927, p. 52. (Abstract by Leonard Greenburg.)

This is a very succinct and accurate description of the present status of the problem of ventilation. Professor Phelps describes the physiological backgrounds of the problem and finally points out that the problem of ventilation is brought about by the necessity for the removal of excess heat and humidity from inclosed places.

The three physical factors bearing on the cooling power of the atmosphere are temperature, humidity, and air motion, and Professor Phelps has grouped these together in a relation for which he has determined the formula experimentally.

Two very important points bearing on the physiological backgrounds of this problem are described. The first is that equivalent states of physical conditions are not of necessity physiological equivalents, and the second is that the physiological test of feeling equally warm is not a satisfactory criterion of equivalent air conditions.

For the home and office the standard of the New York State Commission on Ventilation is recommended as being satisfactory; namely, the maintenance of

a temperature not over 68° F. without artificial humidification and a moderate supply of fresh air such as may be obtained from an open window. For auditoria and theaters, provisions should be made for the admission of fresh air, but it is pointed out that under many conditions the good effect of this air supply is often undone by overheating.

More Smoke Stopped by Diplomacy than by Ordinance. Osborn Monnett. *The American City*, vol. 36, No. 1, January, 1927, p. 81. (Abstract by Leonard Greenburg.)

The author of this paper, who has had very extensive experience in smoke control, points out that about one-half the smoke of any particular locality is caused by the more important industrial plants, and about 25 per cent of the smoke in the heating season is produced by the small heating plants. He emphasizes the importance of the human element in the control of the smoke problem. The progress of this art, he believes, depends largely on instruction and organized, consistent, educational effort, both for better equipment and for better supervision.

A standard satisfactory appropriation, according to Mr. Monnett, is approximately $50,000 a year per million population.

By the proper means, approximately 60 per cent of the residential smoke may be prevented and as high as 95 per cent of the industrial plant high-pressure smoke may be prevented. He emphasizes the importance of carbonized fuel as a solution of this problem.

The Estimation of Carbon Monoxide in the Air of Workshops. Dr. F. Schoofs, professor in the University of Liege, Belgium. *The Journal of State Medicine*, vol. 34, No. 10, October, 1926, pp. 575–577. (Abstract by Leonard Greenburg.)

The author presents analyses of 12 samples of coal gas and finds the carbon-monoxide content to lie between 12.6 and 16.4 per cent. Because of this high carbon-monoxide content he urges care in cases of gas leaks.

He also quotes the results of three analyses of blood of men who died from carbon-monoxide poisoning. The CO saturation of these was found to be between 58 and 72 per cent. He feels from this that a quantitative examination of the blood is desirable in all such cases.

He further shows by some brief experiments that carbon monoxide is given off when alkaline pyrogallol solutions are used for the removal of oxygen. A considerable excess of alkali must be used in order to prevent this.

DEATHS DURING WEEK ENDED APRIL 16, 1927

Summary of information received by telegraph from industrial insurance companies for week ended April 16, 1927, and corresponding week of 1926. (From the Weekly Health Index, April 21, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended April 16, 1927	Corresponding week 1926
Policies in force	67, 347, 002	64, 038, 181
Number of death claims	12, 654	16, 648
Death claims per 1,000 policies in force, annual rate	9. 8	13. 6

Deaths from all causes in certain large cities of the United States during the week ended April 16, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 21, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 16, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 16, 1927 [2]
	Total deaths	Death rate [1]		Week ended Apr. 16, 1927	Corresponding week 1926	
Total (68 cities)	7,706	13.6	[3] 15.5	823	[3] 1,092	[4] 68
Akron	47			4	20	43
Albany [5]	41	17.8	14.5	2	0	42
Atlanta	79			10	12	
White	44			4	9	
Colored	35	(6)		6	3	
Baltimore [5]	222	14.1	14.1	24	26	74
White	164		11.9	13	17	50
Colored	58	(6)	27.2	11	9	171
Birmingham	75	18.2	17.1	8	9	
White	34		12.2	3	4	
Colored	41	(6)	24.5	5	5	
Boston	224	14.7	19.5	31	37	87
Bridgeport	26			1	5	19
Buffalo	119	11.3	18.6	10	26	42
Cambridge	43	18.1	18.4	5	7	89
Camden	37	14.5	14.7	4	4	69
Canton	29	13.4	15.6	6	6	142
Chicago [5]	782	13.1	13.6	87	86	75
Cincinnati	146	18.5	19.5	14	13	87
Cleveland	221	11.7	15.5	22	44	58
Columbus	86	15.4	15.2	6	7	56
Dallas	41	10.2	12.3	8	2	
White	33		9.5	7	2	
Colored	8	(6)	30.9	1	0	
Denver	80	14.4	14.5	10	11	
Des Moines	26	9.1	12.9	2	1	33
Detroit	312	12.2	16.8	59	99	93
Duluth	34	15.4	16.6	3	4	65
El Paso	21	9.6	15.3	5	7	
Erie	20			3	7	59
Fall River [5]	33	12.9	20.3	10	10	177
Flint	22	8.0	8.1	3	8	49
Fort Worth	28	8.9	6.6	1	2	
White	23		6.3	1	2	
Colored	5	(6)	8.2	0	0	
Grand Rapids	31	10.2	15.0	5	9	73
Houston	48			7	6	
White	26			2	4	
Colored	22	(6)		5	2	
Indianapolis	97	13.5	16.9	6	10	47
White	80		16.1	5	9	45
Colored	17	(6)	22.5	1	1	61
Jersey City	100	16.2	14.3	8	9	60
Kansas City, Kans	42	18.7	20.5	4	6	78
White	29		19.5	2	2	45
Colored	13	(6)	25.4	2	4	304
Kansas City, Mo	94	12.8	14.6	6	13	
Knoxville	32	16.4		3		
White	28			2		
Colored	4	(6)		1		
Los Angeles	249			[illegible]	28	69
Louisville	68	11.1	16.9	2	9	17
White	46		15.2	2	5	19
Colored	22	(6)	26.0	0	4	0
Lowell	35	16.5	20.8	5	8	96
Lynn	33	16.4	11.5	3	3	79
Memphis	87	25.3	20.9	8	4	
White	44		21.0	1	2	
Colored	43	(6)	20.7	7	2	
Milwaukee	119	11.8	15.7	10	28	47
Minneapolis	110	13.0	15.4	8	16	45
Nashville [5]	39	14.7	20.6	3	4	
White	23		18.6	0	3	
Colored	16	(6)	25.4	3	1	

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended April 16, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Apr. 16, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 16, 1927 [2]
	Total deaths	Death rate [1]		Week ended Apr. 16, 1927	Corresponding week 1926	
New Bedford	26	11.3	22.2	5	11	87
New Haven	43	12 1	14.9	4	5	56
New Orleans	119	14.6	16.4	17	12	
White	70		14.1	7	6	
Colored	49	(6)	23.0	10	6	
New York	1,613	14.1	16.1	177	251	73
Bronx Borough	225	12.7	12.4	14	21	45
Brooklyn Borough	544	12.5	15.2	68	94	70
Manhattan Borough	652	18.7	20.5	79	101	93
Queens Borough	139	9.0	11.8	13	30	56
Richmond Borough	53	18.8	20.1	3	5	56
Newark, N. J	123	13.8	15.7	13	19	64
Norfolk	32	9.3	9.6	2	4	40
White	10		5.6	0	1	0
Colored	22	(6)	16.6	2	3	106
Oakland	66	12.9	11.0	6	3	70
Oklahoma City	23			2	3	
Omaha	55	13.1	12.8	6	7	67
Paterson	39	14.1	17.1	5	7	88
Philadelphia	545	14.0	14.8	43	62	57
Pittsburgh	157	12.7	19.8	18	27	63
Portland, Oreg	72			3	4	32
Providence	64	11.9	13.8	9	6	76
Richmond	53	14.4	13.0	7	8	92
White	27		8.6	3	2	61
Colored	26	(6)	23.7	4	6	152
Rochester	82	13.2	15.1	9	9	76
St. Louis	206	12.8	15.8	15	26	
St. Paul	57	11.9	12.6	5	2	45
Salt Lake City [5]	32	12.3	14.5	2	6	30
San Antonio	67	16.6	17.8	16	20	
San Diego	38	17.2	16.6	3	4	64
San Francisco	129	11.7	13.4	9	9	56
Schenectady	21	11.8	10.1	2	1	60
Seattle	81			6	3	63
Somerville	26	13 3	19.8	2	3	72
Spokane	31	14.8	14.4	3	2	75
Springfield, Mass	35	12.4	13.3	4	3	62
Syracuse	34	9.0	11.8	3	1	39
Tacoma	28	13.6	13.3	2	2	47
Toledo	68	11.7	15.6	2	8	19
Trenton	45	17.1	12.5	5	4	87
Utica	36	18.2	18.7	3	5	68
Washington, D. C	158	15.3	12.7	14	7	81
White	105		11.4	7	5	59
Colored	53	(6)	16.8	7	2	129
Waterbury	18			3	4	71
Wilmington, Del	40	16.6	14.7	5	6	124
Worcester	65	17.4	23.0	6	11	72
Yonkers	21	9.2	11.7	1	4	23
Youngstown	43	13.3	16.7	9	9	120

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 63 cities.
[5] Deaths for week ended Friday, April 15, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended April 23, 1927

ARIZONA

	Cases
Chicken pox	7
Diphtheria	1
Measles	21
Poliomyelitis	1
Scarlet fever	4
Tuberculosis	27
Whooping cough	2

ARKANSAS

	Cases
Chicken pox	22
Diphtheria	4
Influenza	41
Malaria	11
Measles	135
Mumps	34
Pellagra	3
Scarlet fever	5
Smallpox	7
Trachoma	1
Tuberculosis	2
Typhoid fever	5
Whooping cough	68

COLORADO

	Cases
Cerebrospinal meningitis	2
Chicken pox	14
Diphtheria	4
German measles	8
Influenza	1
Measles	175
Mumps	5
Pneumonia	7
Scarlet fever	34
Smallpox	4
Tuberculosis	15
Typhoid fever	2
Whooping cough	2

CONNECTICUT

	Cases
Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	44
Conjunctivitis (infectious)	1
Diphtheria	31
German measles	11
Influenza	1
Lethargic encephalitis	1
Measles	58
Mumps	38
Pneumonia (broncho)	38
Pneumonia (lobar)	55
Scarlet fever	106
Septic sore throat	2
Tuberculosis (all forms)	24
Whooping cough	20

FLORIDA

	Cases
Cerebrospinal meningitis	1
Diphtheria	10
Influenza	39
Measles	143
Scarlet fever	12
Smallpox	76
Typhoid fever	13

GEORGIA

	Cases
Cerebrospinal meningitis	1
Chicken pox	20
Diphtheria	10
Dysentery	21
Hookworm disease	5
Influenza	102
Lethargic encephalitis	2
Malaria	35
Measles	177
Mumps	30

GEORGIA—continued

	Cases
Pellagra	11
Pneumonia	46
Scarlet fever	8
Septic sore throat	8
Smallpox	45
Tuberculosis	13
Typhoid fever	13
Whooping cough	69

IDAHO

	Cases
Chicken pox	5
Diphtheria	4
Measles	37
Mumps	1
Rocky Mountain spotted fever	1
Scarlet fever	14
Smallpox	7
Typhoid fever	2
Whooping cough	4

ILLINOIS

	Cases
Cerebrospinal meningitis.	
Cook County	3
Knox County	1
Lake County	1
Randolph County	1
Chicken pox	262
Diphtheria	118
Influenza	133
Lethargic encephalitis	2
Measles	1,694
Mumps	530
Pneumonia	532
Scarlet fever	264
Smallpox	28
Tuberculosis	420
Typhoid fever	12
Whooping cough	210

KANSAS

	Cases
Cerebrospinal meningitis:	
Columbus	1
Meade	1
Chicken pox	103
Diphtheria	8
German measles	11
Influenza	8
Measles	1,193
Mumps	53
Pneumonia	33
Poliomyelitis—Hutchinson	1
Scarlet fever	99
Smallpox	20
Tuberculosis	46
Tularæmia	1
Typhoid fever	2
Vincent's angina	2
Whooping cough	60

LOUISIANA

	Cases
Diphtheria	16
Influenza	21
Measles	63
Pneumonia	28
Scarlet fever	9
Smallpox	3
Tuberculosis	25
Typhoid fever	11

MAINE

	Cases
Cerebrospinal meningitis	1
Chicken pox	22
Diphtheria	5
German measles	76
Influenza	5
Measles	116
Mumps	7
Pneumonia	24
Scarlet fever	24
Tuberculosis	15
Typhoid fever	4
Vincent's angina	1
Whooping cough	13

MARYLAND [1]

	Cases
Chicken pox	83
Diphtheria	47
German measles	2
Impetigo contagiosa	3
Influenza	64
Measles	16
Mumps	27
Paratyphoid fever	2
Pneumonia (broncho)	48
Pneumonia (lobar)	44
Scarlet fever	66
Septic sore throat	1
Tuberculosis	77
Typhoid fever	8
Vincent's angina	2
Whooping cough	98

MASSACHUSETTS

	Cases
Cerebrospinal meningitis	1
Chicken pox	189
Conjunctivitis (suppurative)	9
Diphtheria	81
German measles	15
Influenza	14
Measles	327
Mumps	330
Ophthalmia neonatorum	23
Pellagra	2
Pneumonia (lobar)	137
Scarlet fever	402
Septic sore throat	6
Tuberculosis (pulmonary)	99
Tuberculosis (other forms)	43
Typhoid fever	3
Whooping cough	127

MICHIGAN

	Cases
Diphtheria	92
Measles	351
Pneumonia	118
Scarlet fever	226
Smallpox	41
Tuberculosis	55
Typhoid fever	6
Whooping cough	125

[1] Week ended Friday.

MONTANA

	Cases
Cerebrospinal meningitis	2
Diphtheria	3
Measles	27
Rocky Mountain spotted fever	1
Scarlet fever	42
Smallpox	1
Typhoid fever	4

NEW JERSEY

	Cases
Chicken pox	235
Diphtheria	150
Influenza	25
Measles	98
Pneumonia	172
Scarlet fever	387
Typhoid fever	6
Whooping cough	208

NEW MEXICO

	Cases
Cerebrospinal meningitis	1
Chicken pox	24
German measles	66
Measles	117
Mumps	32
Paratyphoid fever	1
Pellagra	1
Pneumonia	4
Rabies (in animals)	1
Scarlet fever	11
Smallpox	2
Tuberculosis	22
Whooping cough	16

NEW YORK

(Exclusive of New York City)

	Cases
Chicken pox	276
Diphtheria	56
Dysentery	1
German measles	292
Lethargic encephalitis	1
Measles	640
Mumps	401
Ophthalmia neonatorum	3
Pneumonia	321
Scarlet fever	251
Smallpox	3
Typhoid fever	7
Vincent's angina	19
Whooping cough	143

NORTH CAROLINA

	Cases
Cerebrospinal meningitis	1
Chicken pox	99
Diphtheria	20
German measles	6
Measles	1,079
Scarlet fever	16
Smallpox	48
Typhoid fever	3
Whooping cough	628

OREGON

	Cases
Cerebrospinal meningitis	1
Chicken pox	10
Diphtheria	3
Influenza	34
Measles	355
Mumps	22
Pneumonia	[2] 5
Rocky Mountain spotted fever	2
Scarlet fever	28
Septic sore throat	1
Smallpox	14
Tuberculosis	[2] 6
Typhoid fever	1
Whooping cough	10

SOUTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	6
Diphtheria	4
Influenza	6
Measles	88
Mumps	5
Pneumonia	6
Rabies	1
Scarlet fever	33
Smallpox	6
Whooping cough	4

TEXAS

	Cases
Cerebrospinal meningitis	1
Chicken pox	76
Dengue	5
Diphtheria	14
Influenza	25
Leprosy	1
Measles	60
Mumps	43
Paratyphoid fever	8
Pellagra	2
Pneumonia	9
Scarlet fever	26
Smallpox	49
Trachoma	2
Tuberculosis	23
Typhoid fever	3
Whooping cough	50

UTAH

	Cases
Chicken pox	53
Diphtheria	10
German measles	2
Measles	48
Mumps	3
Pneumonia	8
Scarlet fever	19
Smallpox	6
Whooping cough	30

VERMONT

	Cases
Chicken pox	47
Diphtheria	1
Measles	139
Mumps	37
Scarlet fever	3
Whooping cough	4

VIRGINIA

	Cases
Poliomyelitis—Loudoun County	1

[2] Deaths.

WASHINGTON

	Cases
Cerebrospinal meningitis	5
Chicken pox	100
Diphtheria	10
German measles	361
Influenza	4
Measles	402
Mumps	102
Pneumonia	1
Scarlet fever	55
Smallpox	62
Tuberculosis	27
Typhoid fever	2
Whooping cough	47

WEST VIRGINIA

	Cases
Chicken pox	49
Diphtheria	18
Influenza	28
Measles	151
Scarlet fever	31
Smallpox	13
Tuberculosis	9
Typhoid fever	1
Whooping cough	46

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	7
Chicken pox	87
Diphtheria	13
German measles	3
Measles	132
Mumps	88
Pneumonia	21
Scarlet fever	43
Tuberculosis	21
Whooping cough	35
Scattering:	
Cerebrospinal meningitis	4
Chicken pox	60
Diphtheria	21
German measles	49
Influenza	33
Measles	406
Mumps	146
Pneumonia	15
Scarlet fever	100
Smallpox	8
Tuberculosis	25
Typhoid fever	1
Whooping cough	84

Reports for Week Ended April 16, 1927

ALABAMA

	Cases
Chicken pox	42
Dengue	1
Diphtheria	22
Malaria	25
Measles	197
Mumps	20
Pellagra	4
Pneumonia	91
Scarlet fever	9
Smallpox	51
Tuberculosis	101
Typhoid fever	21
Whooping cough	90

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Butte County	1
Oakland	2
Sacramento County	2
San Francisco	1
Chicken pox	399
Diphtheria	101
Influenza	18
Lethargic encephalitis	3
Measles	2,474
Mumps	224
Poliomyelitis—Long Beach	1
Scarlet fever	183
Smallpox	28
Tuberculosis	178
Typhoid fever	9
Whooping cough	120

DISTRICT OF COLUMBIA

	Cases
Chicken pox	60
Diphtheria	30
Influenza	2
Lethargic encephalitis	1
Measles	3
Pneumonia	14
Scarlet fever	12
Tuberculosis	22
Whooping cough	16

GEORGIA

	Cases
Cerebrospinal meningitis	3
Chicken pox	50
Diphtheria	12
Dysentery	7
Hookworm disease	4
Influenza	180
Lethargic encephalitis	1
Malaria	19
Measles	145
Mumps	52
Pellagra	3
Pneumonia	47
Scarlet fever	8
Septic sore throat	6
Smallpox	41
Tuberculosis	17
Typhoid fever	14
Whooping cough	76

INDIANA

	Cases
Chicken pox	149
Diphtheria	31
Influenza	27
Measles	260
Pneumonia	7
Scarlet fever	193
Smallpox	232

INDIANA—continued

	Cases
Tuberculosis	33
Typhoid fever	5
Whooping cough	47

IOWA

	Cases
Cerebrospinal meningitis—Fort Dodge	1
Chicken pox	61
Diphtheria	25
Impetigo contagiosa	1
Measles	462
Mumps	34
Pneumonia	2
Scarlet fever	38
Septic sore throat	1
Smallpox	21
Tuberculosis	14
Typhoid fever	1
Whooping cough	17

MINNESOTA

	Cases
Cerebrospinal meningitis	2
Chicken pox	98
Diphtheria	21
Influenza	6
Measles	176
Pneumonia	8
Scarlet fever	175
Smallpox	4
Tuberculosis	39
Typhoid fever	4
Whooping cough	14

MISSISSIPPI

	Cases
Diphtheria	5
Scarlet fever	5
Smallpox	7
Typhoid fever	12

MISSOURI

(Exclusive of Kansas City)

	Cases
Chicken pox	83
Diphtheria	35
Epidemic sore throat	1
Influenza	4
Measles	171
Mumps	122
Pneumonia	2
Rabies	2
Scarlet fever	76
Smallpox	30
Trachoma	1
Tuberculosis	33
Typhoid fever	3
Whooping cough	39

NEBRASKA

	Cases
Chicken pox	30
Diphtheria	5
German measles	48
Influenza	16
Measles	301
Mumps	36
Pneumonia	3
Scarlet fever	56
Smallpox	33

NEBRASKA—continued

	Cases
Tuberculosis	9
Typhoid fever	1
Whooping cough	11

NORTH DAKOTA

	Cases
Cerebrospinal meningitis	1
Chicken pox	13
Diphtheria	10
Measles	109
Mumps	2
Pneumonia	5
Poliomyelitis	1
Scarlet fever	64
Smallpox	3
Trachoma	1
Tuberculosis	4
Typhoid fever	2

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

	Cases
Cerebrospinal meningitis—Coal County	1
Chicken pox	21
Diphtheria	17
Influenza	159
Malaria	13
Measles	317
Mumps	34
Pneumonia	76
Scarlet fever	70
Smallpox	28
Typhoid fever	46
Whooping cough	40

PENNSYLVANIA

	Cases
Cerebrospinal meningitis—Philadelphia	2
Chicken pox	521
Diphtheria	168
German measles	104
Impetigo contagiosa	7
Lethargic encephalitis	3
Measles	854
Mumps	620
Ophthalmia neonatorum	5
Pneumonia	166
Puerperal fever	7
Scabies	7
Scarlet fever	654
Trachoma	2
Trichinosis	2
Tuberculosis	144
Typhoid fever	17
Whooping cough	311

RHODE ISLAND

	Cases
Chicken pox	7
Diphtheria	1
German measles	1
Mumps	6
Pneumonia	1
Poliomyelitis—Providence	1
Scarlet fever	18
Tuberculosis	6
Typhoid fever	1
Whooping cough	6

SOUTH CAROLINA

	Cases
Chicken pox	134
Dengue	9
Diphtheria	13
Hookworm disease	16
Influenza	1,776
Malaria	82
Measles	177
Pellagra	65
Poliomyelitis	1
Scarlet fever	10
Smallpox	18
Tuberculosis	45
Typhoid fever	3
Whooping cough	197

SOUTH DAKOTA

	Cases
Actinomycosis	1
Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	15
Diphtheria	6
Influenza	10
Measles	254
Mumps	9
Pneumonia	6
Scarlet fever	63
Smallpox	1
Tuberculosis	2
Typhoid fever	1
Whooping cough	10

TENNESSEE

	Cases
Cerebrospinal meningitis:	
Claiborne County	1
Hancock County	1
Chicken pox	72
Diphtheria	10
Dysentery	1
Influenza	195
Malaria	15
Measles	92
Mumps	2
Ophthalmia neonatorum	2
Pellagra	4
Pneumonia	48
Scarlet fever	30
Smallpox	8
Tuberculosis	36
Typhoid fever	5
Whooping cough	78

TEXAS

	Cases
Cerebrospinal meningitis	1
Chicken pox	47
Diphtheria	39
Influenza	35
Measles	387
Mumps	27
Paratyphoid fever	1
Pellagra	2
Pneumonia	19
Scarlet fever	10
Smallpox	75
Trachoma	2
Tuberculosis	26
Typhoid fever	12
Whooping cough	49

WISCONSIN

	Cases
Milwaukee:	
Cerebrospinal meningitis	5
Chicken pox	79
Diphtheria	13
German measles	3
Influenza	2
Measles	122
Mumps	68
Ophthalmia neonatorum	1
Pneumonia	23
Scarlet fever	45
Tuberculosis	20
Whooping cough	22
Scattering:	
Cerebrospinal meningitis	1
Chicken pox	112
Diphtheria	16
German measles	46
Influenza	50
Lethargic encephalitis	1
Measles	711
Mumps	209
Pneumonia	15
Poliomyelitis	1
Scarlet fever	138
Smallpox	7
Tuberculosis	16
Typhoid fever	4
Whooping cough	138

WYOMING

	Cases
Chicken pox	1
German measles	7
Measles	83
Mumps	31
Pneumonia	1
Rocky Mountain spotted fever	4
Scarlet fever	16
Smallpox	8
Whooping cough	6

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March, 1927										
Alabama	6	139	526	63	886	22	2	66	197	74
Indiana	1	131	128		940		0	946	631	10
Iowa	5	93			3,284		0	377	115	25
Louisiana	3	99	76	22	603	3	1	34	41	48
Michigan	0	441	45		1,278		4	1,639	180	30
New Jersey	10	478	160		240		1	1,687	0	15
New York	35	1,830		8	3,480		4	5,707	53	91
South Carolina	0	130	6,201	388	386	168	3	31	90	18
West Virginia	2	55	288		798		1	140	173	24
Wisconsin	28	187	340		3,128		3	764	29	15

March, 1927

	Cases
Anthrax:	
New York	1
Chicken pox:	
Alabama	149
Indiana	736
Iowa	224
Louisiana	31
Michigan	1,561
New Jersey	1,393
New York	3,466
South Carolina	436
West Virginia	302
Wisconsin	1,014
Dengue:	
South Carolina	4
Dysentery:	
New Jersey	1
New York	3
German measles:	
Iowa	3
New Jersey	129
New York	1,279
Wisconsin	116
Hookworm disease:	
Louisiana	33
South Carolina	118
Impetigo contagiosa:	
Iowa	1
Lethargic encephalitis:	
Alabama	4
Louisiana	1
Michigan	5
New York	28
Wisconsin	2
Lead poisoning:	
New Jersey	8
Mumps:	
Alabama	201
Indiana	6
Iowa	171
Louisiana	100
Michigan	1,170
New York	4,863
South Carolina	7
Wisconsin	1,071

March, 1927—Continued

	Cases
Ophthalmia neonatorum:	
New Jersey	2
New York	6
Wisconsin	3
Paratyphoid fever:	
New York	1
South Carolina	3
Puerperal septicemia:	
New York	13
Rabies in animals:	
New York	20
South Carolina	26
Rabies in man:	
New York	1
Septic sore throat:	
Iowa	2
Michigan	16
New York	23
Tetanus:	
New York	5
Trachoma:	
Louisiana	1
New Jersey	1
New York	7
Wisconsin	1
Trichinosis:	
Iowa	3
Typhus fever:	
Alabama	2
Vincent's angina:	
New York	91
Whooping cough:	
Alabama	231
Indiana	225
Iowa	99
Louisiana	62
Michigan	611
New Jersey	1,053
New York	1,584
South Carolina	489
West Virginia	457
Wisconsin	539

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of March, 1927, to other State health departments by departments of health of certain States

Referred by—	Dysentery	Diphtheria	Measles	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever
California						3	
Connecticut				1		1	
Illinois		1	1	1	2	9	1
Minnesota	1			4		41	2
New York				5	2		3

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 30,600,000. The estimated population of the 91 cities reporting deaths is more than 30,000,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 9, 1927, and April 10, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,788	1,287	
97 cities	1,183	680	881
Measles:			
41 States	15,673	23,860	
97 cities	5,087	10,193	
Poliomyelitis:			
43 States	15	12	
Scarlet fever:			
42 States	5,466	4,393	
97 cities	2,341	1,587	1,228
Smallpox:			
41 States	748	752	
97 cities	157	189	135
Typhoid fever:			
42 States	195	199	
97 cities	47	41	45
Deaths reported			
Influenza and pneumonia:			
91 cities	1,073	1,989	
Smallpox:			
91 cities	0	26	
Los Angeles	0	25	
San Francisco	0	1	

City reports for week ended April 9, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	3	0	1	0	0	3	1	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	5	0	0
Manchester	83,097	0	2	0	0	1	0	0	5
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,089	0	1	0	0	0	0	1	0
Massachusetts:									
Boston	779,620	67	55	42	6	0	88	104	34
Fall River	128,993	4	3	2	1	0	0	3	1
Springfield	142,065	0	2	9	0	0	1	3	1
Worcester	190,757	16	4	6	0	0	2	5	3
Rhode Island:									
Pawtucket	69,760	9	1	0	0	0	0	0	3
Providence	267,918	0	8	7	0	3	0	0	7
Connecticut:									
Bridgeport	(1)	2	6	6	0	0	14	3	1
Hartford	160,197	2	6	0	0	0	0	1	3
New Haven	178,927	0	3	5	0	0	3	12	6
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	17	10	15		1	6	13	22
New York	5,873,356	329	216	391	54	30	78	392	250
Rochester	316,786	10	9	20		0	23	3	5
Syracuse	182,003	12	6	5		1	122	16	4
New Jersey:									
Camden	128,642	12	4	16	0	0	1	1	7
Newark	452,513	106	16	6	6	1	4	95	20
Trenton	132,020	2	4	0	1	1	0	0	4
Pennsylvania:									
Philadelphia	1,979,364	107	71	71		17	23	152	64
Pittsburgh	631,563	51	18	19		2	61	8	24
Reading	112,707	14	2	3		0	5	54	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	15	7	15	0	1	5	20	13
Cleveland	936,485	95	22	53	4	3	5	61	17
Columbus	279,836	4	3	7	0	1	1	1	6
Indiana:									
Fort Wayne	97,846	5	2	1	0	0	35	0	0
Indianapolis	358,819	64	6	4	0	0	19	36	15
South Bend	80,091	1	1	0	0	0	21	0	1
Terre Haute	71,071	3	0	0	0	1	39	0	2
Illinois:									
Chicago	2,995,239	90	81	83	14	4	1,104	172	70
Peoria	81,564	5	1	0	0	0	6	0	1
Springfield	63,923	7	1	3	0	0	18	0	2
Michigan:									
Detroit	1,245,824	82	50	56	2	4	17	137	38
Flint	130,316	11	3	4	0	0	6	1	8
Grand Rapids	153,698	8	3	1	0	0	2	0	2

(1) No estimate made.

City reports for week ended April 9, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50,891	9	1	0	0	0	67	45	0
Madison	46,385	--------	0	--------	--------	--------	--------	--------	--------
Milwaukee	509,192	76	14	25	0	0	84	90	10
Racine	67,707	11	1	1	0	0	12	25	2
Superior	39,671	1	0	0	0	0	1	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	8	1	0	0	0	38	0	3
Minneapolis	425,435	63	15	24	0	3	4	0	19
St. Paul	246,001	46	15	13	0	1	15	3	15
Iowa:									
Davenport	52,469	0	1	0	0	--------	0	0	--------
Des Moines	141,441	0	2	1	0	--------	21	0	--------
Sioux City	76,411	5	1	2	0	--------	57	8	--------
Waterloo	36,771	7	0	2	0	--------	74	1	--------
Missouri:									
Kansas City	367,481	20	6	2	0	2	95	9	10
St. Joseph	78,342	3	1	0	0	0	36	0	6
St. Louis	821,543	31	38	39	0	0	51	59	--------
North Dakota:									
Fargo	26,403	1	1	0	0	1	47	14	1
Grand Forks	14,811	0	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15,036	0	0	0	0	--------	66	1	--------
Sioux Falls	30,127	0	0	0	0	--------	11	0	2
Nebraska:									
Lincoln	60,941	13	1	1	0	0	99	7	1
Omaha	211,768	4	3	1	0	0	89	22	10
Kansas:									
Topeka	55,411	6	1	1	0	1	138	2	2
Wichita	88,367	22	1	2	0	0	13	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	6	2	2	0	0	0	0	0
Maryland:									
Baltimore	796,296	91	26	25	62	10	6	15	31
Cumberland	33,741	1	1	1	1	0	2	1	0
Frederick	12,035	--------	0	--------	--------	--------	--------	--------	--------
District of Columbia:									
Washington	497,906	34	10	19	2	2	5	0	9
Virginia:									
Lynchburg	30,395	5	1	2	0	0	50	0	2
Norfolk	(1)	--------	1	--------	--------	--------	--------	--------	--------
Richmond	186,403	0	2	5	0	1	162	2	7
Roanoke	58,208	4	0	0	0	1	2	0	1
West Virginia:									
Charleston	49,019	5	1	0	0	0	0	0	0
Wheeling	56,208	8	0	1	0	0	24	0	5
North Carolina:									
Raleigh	30,371	11	0	1	0	0	54	0	2
Wilmington	37,061	--------	0	--------	--------	--------	--------	--------	--------
Winston-Salem	69,031	3	1	0	0	2	14	22	5
South Carolina:									
Charleston	73,125	1	0	0	56	2	11	0	0
Columbia	41,225	7	1	0	0	1	0	3	2
Greenville	27,311	1	0	0	0	0	6	0	1
Georgia:									
Atlanta	(1)	5	2	4	36	2	54	14	8
Brunswick	16,809	2	0	0	0	0	0	1	1
Savannah	93,134	0	1	2	35	1	4	1	5
Florida:									
Miami	69,754	23	4	6	0	0	3	1	0
St. Petersburg	26,847	--------	0	--------	--------	1	--------	--------	2
Tampa	94,743	4	0	2	0	0	118	0	2

[1] No estimate made.

City reports for week ended April 9, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	1	0	0	0	0	2
Louisville	305,935	4	5	1	2	0	1	2	13
Tennessee:									
Memphis	174,533	12	4	1	0	5	16	0	8
Nashville	136,220	7	1	1	0	4	0	0	4
Alabama:									
Birmingham	205,670	14	2	7	43	5	47	8	13
Mobile	65,955	1	0	0	0	0	21	0	1
Montgomery	46,481	3	0	2	0	0	35	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	5	1	0	0		161	2	
Little Rock	74,216	9	0	0	0	0	21	0	2
Louisiana:									
New Orleans	414,493	2	7	57	5	7	128	0	14
Shreveport	57,857	7	0	0	0	0	13	19	0
Oklahoma:									
Oklahoma City	(1)	3	1	0	18	0	8	1	3
Texas:									
Dallas	194,450	3	3	7	1	2	185	6	4
Galveston	48,375	0	1	3	0	0	0	0	0
Houston	164,954	1	2	5	0	1	1	2	4
San Antonio	198,069	2	1	9	0	2	2	1	9
MOUNTAIN									
Montana:									
Billings	17,971	2	0	1	0	0	0	0	0
Great Falls	29,883	9	0	0	0	1	5	0	1
Helena	12,037		0	0	0	0	0		3
Missoula	12,668	0	0	0	0	0	0	2	0
Idaho:									
Boise	23,042	0	0	0	0	0	2	0	0
Colorado:									
Denver	280,911	14	10	5		3	226	2	17
Pueblo	43,787	5	1	5	0	0	49	0	4
New Mexico:									
Albuquerque	21,000	4	0	0	0	0	9	17	0
Utah:									
Salt Lake City	130,948	17	3	8	0	0	11	1	2
Nevada:									
Reno	12,665	0	0	0	0	0	18	0	0
PACIFIC									
Washington:									
Seattle	(1)	57	5	0	0		69	75	
Spokane	108,897	6	2	0	0		16	0	
Tacoma	104,455	16	1	1	0	1	77	0	4
Oregon:									
Portland	282,383	16	7	6	0	1	131	4	9
California:									
Los Angeles	(1)	50	40	28	29	2	858	13	18
Sacramento	72,260	30	2	2	0	1	15	2	3
San Francisco	557,530	81	20	17	3	1	133	130	9

[1] No estimate made.

City reports for week ended April 9, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	4	1	0	0	0	0	0	0	0	5	23
New Hampshire:											
Concord	1	0	0	0	0	1	0	0	0	0	10
Manchester	3	0	0	0	0	1	0	0	0	0	21
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	4
Burlington	0	2	0	0	0	1	0	0	0	1	11
Massachusetts:											
Boston	71	96	0	0	0	15	1	0	0	24	252
Fall River	3	4	0	0	0	2	0	0	0	6	29
Springfield	6	5	0	0	0	2	0	0	0	13	34
Worcester	9	13	0	0	0	3	0	1	0	0	60
Rhode Island:											
Pawtucket	1	0	0	0	0	2	0	0	0	0	18
Providence	8	9	0	0	0	3	0	2	0	2	68
Connecticut:											
Bridgeport	10	12	0	0	0	1	1	0	0	0	34
Hartford	5	13	0	0	0	5	0	0	0	3	43
New Haven	11	3	0	0	0	3	0	0	0	4	51
MIDDLE ATLANTIC											
New York:											
Buffalo	21	33	0	0	0	6	0	0	0	20	138
New York	260	887	0	0	0	[1] 109	9	7	0	102	1,621
Rochester	15	17	0	0	0	3	0	1	0	1	75
Syracuse	12	14	0	1	0	3	1	1	0	2	50
New Jersey:											
Camden	6	4	0	0	0	1	0	0	0	1	30
Newark	26	60	0	0	0	12	1	0	0	50	123
Trenton	3	3	0	0	0	3	0	0	0	0	37
Pennsylvania:											
Philadelphia	78	154	1	0	0	45	3	3	0	17	573
Pittsburgh	29	29	0	0	0	14	1	0	0	13	200
Reading	4	5	0	0	0	2	0	0	0	0	36
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	35	2	0	0	10	0	0	0	1	131
Cleveland	33	41	0	0	0	19	1	0	0	39	204
Columbus	12	5	2	0	0	5	0	0	0	4	83
Indiana:											
Fort Wayne	6	6	3	4	0	2	0	0	0	0	35
Indianapolis	10	10	10	43	0	7	0	0	0	20	109
South Bend	3	4	0	3	0	1	0	0	0	1	14
Terre Haute	2	2	1	3	0	1	0	0	0	1	24
Illinois:											
Chicago	119	109	3	0	0	54	2	4	1	53	730
Peoria	3	0	1	0	0	1	0	0	0	0	22
Springfield	2	3	0	0	0	0	1	0	0	0	14
Michigan:											
Detroit	86	90	2	0	0	27	2	2	1	76	279
Flint	6	29	1	2	0	0	1	0	0	3	29
Grand Rapids	8	18	1	0	0	1	1	0	0	2	36
Wisconsin:											
Kenosha	3	3	1	0	0	0	0	0	0	0	5
Madison	3	------	0	------	------	------	0	------	------	------	------
Milwaukee	26	41	2	0	0	4	1	1	0	42	100
Racine	4	5	0	0	0	0	0	0	0	19	15
Superior	3	7	3	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	7	10	1	0	0	1	1	0	0	0	25
Minneapolis	41	59	7	0	0	4	0	0	0	0	107
St. Paul	31	27	5	0	0	1	1	0	0	2	72

[1] Pulmonary tuberculosis only.

City reports for week ended April 9, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—con.											
Iowa:											
Davenport	2	3	2	0	-------	-------	0	0	-------	0	-------
Des Moines	5	16	3	1	-------	-------	0	0	-------	0	-------
Sioux City	2	5	1	2	-------	-------	0	0	-------	2	-------
Waterloo	2	2	1	0	-------	-------	0	0	-------	0	-------
Missouri:											
Kansas City	11	27	2	10	0	7	0	0	0	9	166
St. Joseph	2	3	0	0	0	1	0	0	0	1	25
St. Louis	35	43	4	1	0	16	2	0	2	31	229
North Dakota:											
Fargo	2	10	0	0	0	0	0	0	0	0	14
Grand Forks	0	1	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	3	2	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	2	5	1	0	0	0	0	0	0	0	5
Nebraska:											
Lincoln	3	5	0	6	0	1	0	0	0	5	16
Omaha	3	20	9	1	0	2	0	0	0	1	81
Kansas.											
Topeka	3	5	1	3	0	1	0	0	0	3	20
Wichita	3	8	3	4	0	0	0	1	0	5	30
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	8	0	0	0	1	0	0	0	3	16
Maryland:											
Baltimore	36	37	0	0	0	22	0	2	0	51	244
Cumberland	0	0	0	0	0	1	0	0	0	0	5
Frederick	0	-------	0	-------	-------	-------	0	-------	-------	-------	-------
District of Col.:											
Washington	24	29	2	0	0	13	1	0	0	14	128
Virginia:											
Lynchburg	0	4	0	0	0	0	0	0	0	0	10
Norfolk	2	-------	0	-------	-------	-------	1	-------	-------	-------	-------
Richmond	2	1	1	0	0	5	0	0	0	7	56
Roanoke	1	3	1	1	0	1	0	0	0	0	16
West Virginia:											
Charleston	0	1	0	1	0	2	0	1	0	0	24
Wheeling	2	3	0	0	0	1	0	0	0	7	19
North Carolina:											
Raleigh	0	2	0	0	0	2	0	0	0	27	10
Wilmington	0	-------	1	-------	-------	-------	0	-------	-------	-------	-------
Winston-Salem	1	1	5	0	0	2	0	0	0	37	22
South Carolina:											
Charleston	0	0	0	0	0	6	0	0	0	19	35
Columbia	0	0	1	1	0	0	0	0	0	16	10
Greenville	0	1	0	0	0	1	0	0	0	3	12
Georgia:											
Atlanta	3	7	3	8	0	5	0	2	1	2	72
Brunswick	0	0	0	1	0	0	0	0	0	0	3
Savannah	0	0	0	1	0	3	0	0	0	0	33
Florida:											
Miami	2	3	-------	0	0	1	1	0	0	4	33
St. Petersburg	0	-------	0	-------	0	1	1	-------	0	-------	18
Tampa	0	1	0	1	0	1	1	0	0	0	33
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	1	0	1	0	1	1	0	0	0	18
Louisville	5	10	1	2	0	7	1	0	1	0	95
Tennessee:											
Memphis	4	19	4	6	0	8	1	0	2	38	67
Nashville	2	2	2	0	0	4	0	0	0	3	48
Alabama:											
Birmingham	1	3	10	8	0	7	1	5	1	4	73
Mobile	1	0	1	0	0	2	0	2	0	0	25
Montgomery	0	0	1	0	0	0	0	0	0	0	12

City reports for week ended April 9, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	1	0	--------	2	0	0	--------	11	6
Little Rock	1	2	0	0	0	1	0	1	0	0	--------
Louisiana:											
New Orleans	5	7	3	0	0	16	2	3	2	8	153
Shreveport	0	2	2	0	0	0	0	0	0	0	20
Oklahoma:											
Oklahoma City	2	3	3	4	0	2	1	0	0	0	40
Texas:											
Dallas	2	2	2	7	0	1	0	1	0	0	56
Galveston	1	1	1	0	0	1	1	0	0	0	12
Houston	1	4	1	16	0	5	0	1	1	0	57
San Antonio	0	6	1	2	0	10	1	3	0	0	63
MOUNTAIN											
Montana:											
Billings	1	2	1	0	0	0	0	0	0	0	8
Great Falls	1	6	1	0	0	0	0	0	0	0	12
Helena	0	0	0	0	0	0	0	0	0	--------	--------
Missoula	1	3	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	3	1	0	0	0	0	0	0	0	4
Colorado:											
Denver	11	77	3	0	0	11	0	0	0	0	97
Pueblo	1	8	0	0	0	0	0	0	0	0	18
New Mexico:											
Albuquerque	1	1	0	0	0	1	0	0	0	0	6
Utah:											
Salt Lake City	2	5	1	3	0	1	0	0	0	10	35
Nevada:											
Reno	0	1	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	9	3	4	1	--------	--------	0	0	--------	28	--------
Spokane	4	27	5	14	--------	--------	0	0	--------	3	--------
Tacoma	3	3	3	0	0	1	0	0	0	1	26
Oregon:											
Portland	7	2	7	6	0	5	0	0	0	6	67
California:											
Los Angeles	21	39	4	0	0	33	1	2	0	22	256
Sacramento	2	3	0	5	0	5	1	1	0	0	32
San Francisco	13	18	4	1	0	18	1	0	0	22	160

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
New Hampshire:									
Manchester	0	0	0	0	0	0	0	0	1
Massachusetts:									
Boston	1	2	0	0	0	0	1	0	0
Fall River	1	1	0	0	0	0	0	0	0
Springfield	1	1	0	0	0	0	0	1	1

City reports for week ended April 9, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York	3	2	5	5	0	0	1	3	1
New Jersey:									
Camden	0	0	0	0	0	0	0	1	1
Trenton	0	0	0	1	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	1	0	0	0	0	0	1	0
Illinois:									
Chicago	8	2	3	2	0	0	0	0	0
Michigan:									
Detroit	1	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	5	3	0	0	0	0	0	0	0
Racine	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	2	1	0	0	0	0	0	0	0
Minneapolis	0	1	1	1	0	0	0	0	0
Missouri:									
St. Louis	0	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
South Carolina:									
Charleston	0	0	0	1	0	1	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Savannah [1]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	0	0	0	0	1	1	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	0	0
Texas:									
Houston	0	0	0	0	0	1	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Pueblo	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	2		0		0		0	0	
Oregon:									
Portland	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	1	1	1	0	0	0	0	0	0
Sacramento	3	1	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	1	0

[1] Rabies (human): 1 case and 1 death at Savannah, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 9, 1927, compared with those for a like period ended April 10, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, March 6 to April 9, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
101 cities	[2] 114	[2] 184	120	171	[3] 131	178	[2] 126	[2] 191	116	[4] 202
New England	78	123	127	137	139	130	80	137	125	181
Middle Atlantic	113	231	126	225	142	227	140	264	125	209
East North Central	[2] 107	[2] 166	98	157	102	179	[2] 113	[2] 160	88	[2] 170
West North Central	216	133	147	127	149	121	159	159	204	171
South Atlantic	86	156	69	141	[3] 62	147	95	157	86	[5] 128
East South Central	26	112	26	31	36	41	57	61	114	66
West South Central	103	193	103	164	155	176	60	180	60	340
Mountain	109	198	73	126	255	81	146	108	118	171
Pacific	147	199	281	165	238	194	201	170	137	126

MEASLES CASE RATES

	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
101 cities	[2] 1,686	[2] 942	1,783	913	[3] 1,834	934	[2] 1,693	[2] 805	1,781	[4] 865
New England	1,964	197	1,722	211	1,344	197	1,460	204	1,568	209
Middle Atlantic	1,716	80	1,858	93	1,839	114	1,850	128	1,773	159
East North Central	[2] 2,135	[2] 1,104	1,994	1,160	2,001	1,092	[2] 1,504	[2] 884	1,572	[2] 920
West North Central	1,603	1,245	1,892	1,564	2,323	1,519	2,428	1,558	3,283	1,304
South Atlantic	2,248	786	2,772	1,015	[3] 2,731	977	2,649	1,096	2,630	[5] 1,008
East South Atlantic	1,407	459	2,260	443	2,906	438	2,875	285	3,020	611
West South Central	39	1,204	43	1,010	125	1,778	43	948	236	2,143
Mountain	337	9,116	328	5,412	310	5,088	556	3,452	419	2,796
Pacific	324	3,259	319	2,930	450	3,170	246	2,707	388	3,058

SCARLET FEVER CASE RATES

	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
101 cities	[2] 303	[2] 446	300	433	[3] 324	424	[2] 296	[2] 439	274	[4] 398
New England	333	590	403	546	354	478	301	513	318	302
Middle Atlantic	192	585	202	573	210	581	210	614	176	595
East North Central	[2] 371	[2] 364	340	359	407	351	[2] 331	[2] 323	330	[2] 272
West North Central	903	472	815	427	897	401	789	469	845	435
South Atlantic	149	194	158	219	[3] 155	179	173	197	145	[5] 198
East South Central	140	280	145	209	140	163	217	173	165	178
West South Central	112	122	137	63	146	59	86	55	116	101
Mountain	219	1,115	246	1,340	210	1,133	146	1,214	100	944
Pacific	249	285	279	254	287	361	249	340	155	243

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Norfolk, Va., not included.
[4] Madison, Wis., Frederick, Md., Norfolk, Va., and Wilmington, N. C., not included.
[5] Frederick, Md., Norfolk, Va., and Wilmington, N. C., not included.

Summary of weekly reports from cities, March 6 to April 9, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued.

SMALLPOX CASE RATES

	Week ended—									
	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
101 cities	[2]40	[2]30	36	31	[3]37	30	[2]42	[2]28	32	[4]27
New England	0	0	0	0	0	0	0	2	0	0
Middle Atlantic	0	0	0	1	0	0	0	0	0	0
East North Central	[2]19	[2]34	26	35	10	29	[2]17	[2]34	18	[2]37
West North Central	67	54	50	50	54	69	46	30	50	42
South Atlantic	48	54	60	51	[3]95	42	41	62	67	[5]28
East South Central	67	82	83	132	57	107	98	122	88	87
West South Central	142	71	137	46	142	75	90	63	133	105
Mountain	18	0	64	90	27	18	55	9	27	27
Pacific	260	94	163	84	209	99	346	68	137	55

TYPHOID FEVER CASE RATES

	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
101 cities	[2]8	[2]8	6	7	[3]8	8	[2]10	[2]8	7	[4]8
New England	5	12	0	5	0	5	7	12	9	7
Middle Atlantic	7	8	4	6	10	7	8	6	5	6
East North Central	[2]4	[2]1	3	4	4	4	[2]3	[2]1	3	[2]5
West North Central	4	4	2	0	2	4	8	2	10	2
South Atlantic	7	11	20	11	[3]16	13	17	16	6	[5]10
East South Central	5	31	21	20	16	41	31	20	10	36
West South Central	4	17	9	13	9	29	34	25	17	38
Mountain	146	0	9	9	27	0	36	0	18	0
Pacific	0	10	5	18	13	10	11	24	13	8

INFLUENZA DEATH RATES

	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
95 cities	[2]71	[2]27	76	31	[3]97	27	[2]89	[2]22	74	[4]23
New England	24	12	45	19	68	7	108	12	83	7
Middle Atlantic	105	25	95	32	112	26	100	21	76	26
East North Central	[2]32	[2]16	65	18	104	16	[2]110	[2]14	81	[2]9
West North Central	36	15	32	21	38	15	38	4	32	17
South Atlantic	78	72	51	79	[3]83	63	59	37	59	[5]42
East South Central	197	76	222	87	253	92	98	102	238	71
West South Central	97	47	146	22	115	26	102	30	66	52
Mountain	146	54	46	18	64	27	27	27	46	36
Pacific	21	7	18	14	14	28	21	24	14	17

PNEUMONIA DEATH RATES

	Mar. 13, 1926	Mar. 12, 1927	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927
95 cities	[2]326	[2]183	372	183	[3]372	166	[2]335	[2]163	277	[4]163
New England	217	188	356	172	429	156	467	156	358	139
Middle Atlantic	461	223	504	226	494	199	433	186	339	199
East North Central	[2]289	[2]159	355	142	352	141	[2]322	[2]148	245	[2]132
West North Central	148	81	146	114	160	102	160	93	186	137
South Atlantic	303	278	352	254	[3]333	215	291	224	236	[5]158
East South Central	388	178	398	183	476	188	357	127	429	209
West South Central	238	159	260	190	163	116	185	159	159	142
Mountain	301	171	201	162	191	171	155	162	137	243
Pacific	92	148	99	93	117	110	57	128	148	117

[2] Madison, Wis., not included.
[3] Norfolk, Va., not included.
[4] Madison, Wis., Frederick, Md., Norfolk, Va., and Wilmington, N. C., not included.
[5] Frederick, Md., Norfolk, Va., and Wilmington, N. C., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended March 26, 1927.—The following report for the week ended March 26, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Iraq: Basrah	0	0	0	0	1	0	Siam: Bangkok	3	0	15	12	8	4
Ceylon: Colombo	2	2	0	0	0	0	Dutch East Indies:						
British India:							Surabaya	1	1	0	0	0	0
Karachi	0	0	0	0	1	0	French Indo-China:						
Calcutta	----	0	----	67	424	300	Saigon	0	0	1	1	0	0
Rangoon	----	4	----	4	53	14	China: Shanghai	0	0	0	0	1	0
Bassein	----	3	----	4	0	0	Manchuria. Harbin	0	0	0	0	16	12
Madras	----	0	----	0	22	2							
Negapatam	----	0	----	0	1	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Perim, Kamaran.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang, Singapore.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Padang, Palembang, Makassar, Samarinda.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Tourane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy.

Hongkong.

Macao.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo, Fusan.

Manchuria.—Antung, Yingkow, Mukden, Changchun.

Kwantung.—Dairen, Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Osaka, Kobe.

AUSTRAL ASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Samoa.—Apia.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenco-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—St. Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga, Tamatave.

Reports had not been received in time for publication from:

Kenya.—Mombasa.
British India.—Bombay.
Dutch East Indies.—Tarakan, Balikpapan.
U. S. S. R.—Vladivostok.

Belated information:

Week ending March 19.—*Pondicherry:* Cholera case 1.

Movement of infected ships:

Penang.—*S. S. Tilawa* arrived from Rangoon infected with smallpox.

Ba'uvia.—A *steamship* (name undecipherable) arrived from Hongkong infected with cholera.

Other epidemiological information:

Papua.—An outbreak of measles and German measles is reported from Samarai.

ANGOLA (PORTUGUESE WEST AFRICA)

Disease prevalence—February 2–15, 1927.—During the two weeks ended February 15, 1927, prevalence of certain diseases was reported in Angola, Portuguese West Africa, as follows: Dysentery, 29 cases in one district; influenza, 7 cases in two districts; malaria, 39 cases in three districts and reported present in Benguela district; plague, 1 case at Port Alexander; and smallpox, 3 cases, 1 in Congo district and 2 in Malange district.

CANADA

Communicable diseases—Week ended April 9, 1927.—The Canadian ministry of health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended April 9, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	43							43
Smallpox				6	2	3	14	25
Typhoid fever	3		451	6		4	1	465

CUBA

Communicable diseases—Habana—March 1–31, 1927.—During the month of March, 1927, communicable diseases were reported in Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment Mar. 31, 1927	Disease	New cases	Deaths	Remaining under treatment Mar. 31, 1927
Beriberi			2	Measles	28	1	28
Chicken pox	24		25	Paratyphoid fever	3		4
Diphtheria	13	1	8	Rabies	1	1	
Leprosy			11	Scarlet fever	9		5
Malaria [1]	59	1	41	Typhoid fever [1]	30	6	33

[1] Many of these cases from the interior.

EGYPT

Plague—March 12-18, 1927.—During the week ended March 18, 1927, a case of plague was reported in Egypt, occurring at Port Said. The total number of cases of plague reported in Egypt from January 1 to March 18, 1927, was 14, as compared with 3 cases reported for the corresponding period of the year 1926.

FINLAND

Communicable diseases—January-February, 1927.—Communicable diseases have been reported in the Republic of Finland as follows:

Disease	Cases		Disease	Cases	
	Jan. 1-31, 1927	Feb. 1-28, 1927		Jan. 1-31, 1927	Feb. 1-28, 1927
Diphtheria	79	127	Paratyphoid fever	19	4
Dysentery		5	Poliomyelitis	1	4
Influenza	14,509	25,014	Scarlet fever	230	276
Lethargic encephalitis	3		Typhoid fever	19	9

Population, census: 3,495,186.

GREECE

Plague—Piræus—April 2, 1927.—A case of plague was reported at Piræus, Greece, April 2, 1927.

JAMAICA

Smallpox (alastrim)—March 13-April 2, 1927.—During the period March 13 to April 2, 1927, 10 new cases of smallpox (alastrim) were reported in the Island of Jamaica, exclusive of Kingston.

Other communicable diseases.—Other communicable diseases were reported as follows:

Disease	Kingston		Other localities		Disease	Kingston		Other localities	
	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths
Chicken pox	12		74		Puerperal fever			1	
Diphtheria	1				Tuberculosis	26		31	
Dysentery	8		31		Typhoid fever	33		65	
Leprosy			1						

Chicken pox—Increase in prevalence.—During the period under report, chicken pox showed an increase in prevalence in the island, with 13 new cases in the week ended March 26, only 1 case in the preceding week, and 60 cases in the week ended April 2, 1927. An increase in prevalence was also noted for typhoid fever, occurring in Kingston, with 1 case reported for the week ended March 19, 12 cases for the week ended March 26, and 20 cases for the week ended April 2, 1927.

UNION OF SOUTH AFRICA

Plague—Orange Free State—February 27–March 5, 1927.—During the week ended March 5, 1927, two fatal cases of plague were reported in the Orange Free State, in Bloemfontein district. The cases occurred in natives on a farm.

Typhus fever.—During the same period, fresh outbreaks of typhus fever were reported in the Mount Currie district, Cape Province.

VIRGIN ISLANDS

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks	Island and disease	Cases	Remarks
St. Thomas and St. John:			St. Croix:		
Chicken pox	4		Filariasis	6	Bancrofti.
Gonorrhea	3		Leprosy	1	
Pellagra	2		Tuberculosis	1	Chronic pulmonary.
Syphilis	2	Secondary.			
Tuberculosis	4	Chronic pulmonary.			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended April 29, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Feb. 6-12, 1927: Cases, 1,943; deaths, 1,086.
Calcutta	Mar. 6-12	47	41	
Madras	Mar. 13-19	2	1	
Rangoon	do	1	1	
Siam				Feb. 27-Mar. 5, 1927: Cases, 65; deaths, 52. Apr. 1, 1926-Mar. 5, 1927: Cases, 8,238; deaths, 5,454.
Bangkok	Feb. 27-Mar. 5	13	11	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Angola:				
Mossamedes district—Port Alexander	Feb. 9-15	1		Portuguese West Africa.
Egypt	Jan. 1-Mar. 18	14		
Port Said	Mar. 12-18	1		
Greece:				
Piraeus	Apr. 2	1		
India				Feb. 13-19, 1927: Cases, 2,164; deaths, 1,368
Bombay	Mar. 6-12	2	2	
Madras Presidency	Feb. 20-26	100	58	
Rangoon	February, 1927			12 plague-infected rats found.
Java:				
Batavia	Feb. 27-Mar. 5	31	31	Province.
East Java and Madura	Feb. 12-19	2	2	
Mauritius:				
Port Louis	Jan. 1-31	5	3	
Senegal:				
Tavaouane	Mar. 21-27	2	2	Interior district.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended April 29, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Siam				Feb. 27-Mar. 5, 1927: 1 case, 1 death. Apr. 1, 1926-Mar. 5, 1927: Cases, 39; deaths, 30.
Bangkok	Feb. 27-Mar. 5	1	1	
Union of South Africa:				
Orange Free State—				
Bloemfontein district	do	2	2	

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Oran	Mar. 21-31	1		
Angola:				
Congo	Feb. 2-15	1		District.
Malange	do	2		Do.
British South Africa:				
Northern Rhodesia	Feb. 26-Mar. 4	55	2	
Canada	Mar. 27-Apr. 9			Cases, 47.
Alberta	do	26		
Manitoba	Apr. 3-9	2		
Winnipeg	do	1		
Ontario	Mar. 27-Apr. 9	16		
Toronto	Apr. 3-9	5		
Saskatchewan	do	3		
China:				
Chungking	Feb. 20-26			Present.
Hongkong	Feb. 27-Mar. 12	23	21	
France:				
Paris	Mar 11-20	2		
Great Britain:				
England and Wales—				
Leeds	Mar. 27-Apr. 2	1		
Newcastle on Tyne	do	2		
Sheffield	Mar. 20-Apr. 2	20	1	
India				Feb. 13-19, 1927: Cases, 6,085; deaths, 1,423.
Bombay	Mar. 6-12	52	31	
Calcutta	do	258	179	
Madras	Mar. 13-19	29	1	
Rangoon	Mar. 6-12	32	6	
Indo-China:				
Cochin China—				
Saigon	Feb. 6-12	1		
Iraq:				
Baghdad	Feb. 20-Mar. 5	2	1	
Jamaica				Mar. 13-Apr. 2, 1927: Cases, 10. (Alastrim.)
Mexico:				
Mexico City	Mar. 20-26	1		Including municipalities in Federal district.
Senegal:				
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Siam				Feb. 27-Mar. 5, 1927: Cases, 14; deaths, 9. Apr. 1, 1926-Mar. 5, 1927: Cases, 775; deaths, 299.
Bangkok	Feb. 27-Mar. 5	7	3	
Spain:				
Valencia	Mar. 27-Apr. 2	2		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Mar. 11-20	11		
Oran	Mar. 21-31	7		
Egypt:				
Alexandria	Mar. 19-25	1		
Mexico:				
Mexico City	Mar. 20-26	10		Including municipalities in Federal district.
Poland				Jan. 31-Feb. 19, 1927: Cases, 176; deaths, 13.
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia:				
Tunis	Mar. 21-31	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-Feb. 5			Cases, 13,919; deaths, 7,824
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Mar. 5	495	375	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar. 12	10	8	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Mar. 12	48	43	
Indo-China	July 1-Aug. 31			Cases, 3,446; deaths, 2,276.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Feb. 26			Cases, 208; deaths, 199.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Feb. 26	27	10	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-31	3		At Port Alexander.
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14–Dec. 11	3	1	2 plague rodents.
Do	Jan. 2–Mar. 5	33	17	10 plague rodents.
China.				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31–Dec. 18			Present.
Do	Feb. 6–Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1–Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1–Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1–Dec. 9			Cases, 149.
	Jan. 1–28			Cases 13.
Alexandria	Nov. 19–Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3–9	2		
Marsa Matrah	Dec. 23–29	10		
Do	Jan. 27	1		
Port Said	Mar. 16	1	1	
Tanta district	Nov. 19–Dec. 20	3		
Greece	Nov. 1–30	10	1	Athens and Piræus.
Athens	Nov. 1–Dec. 31	9	4	
Patras	Nov. 28–Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10–Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2–Feb. 5			Cases, 7,533; deaths, 5,045.
Bombay	Nov. 21–27	1	1	
Do	Jan. 16–Mar. 5	9	8	
Madras	Jan. 31–Jan. 1	581	324	
Do	Oct. 2–Feb. 19	657	414	
Rangoon	Nov. 14–Dec. 25	11	9	
Do	Jan. 2–Mar. 5	44	40	
Indo-China	July 1–Aug. 31			Cases, 34; deaths, 10.
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18.
Iraq:				
Baghdad	Jan. 23–Feb. 5	2	1	
Java:				
Batavia	Nov. 7–Jan. 1	91	90	Province.
Do	Jan. 2–Feb. 26	202	195	
East Java and Madura	Oct. 24–Jan. 1	17	17	
Do	Jan. 2–Feb. 12	12	12	
Madagascar:				
Province—				
Ambositra	Dec. 16–31	10	10	
Do	Jan. 1–31	32	32	
Analalava	Oct. 16–31	1	1	
Antisirabe	Dec. 16–31	2	2	
Do	Jan. 1–31	17	17	
Diego-Suarez	do	7	7	
Itasy	Oct. 16–Dec. 31	39	39	
Do	Jan. 1–31	29	29	
Maevatanana	Oct. 16–31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16–Dec. 31	92	67	
Do	Jan. 1–31	42	40	
Tamatave	Oct. 16–Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1–31	138	133	
Town—				
Tamatave	Nov. 16–30	2		
Tananarive	Oct. 16–Dec. 31	48	34	
Do	Jan. 1–31	11	11	
Mauritius:				
Plaines Wilhems	Oct. 1–Nov. 30	3	3	
Pamplemousses	Dec 1–31	3	3	
Port Louis	Oct. 1–Dec. 31	39	35	
Nigeria	Aug. 1–Nov. 30	999	902	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-Feb. 28	79	18	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	Feb. 1-28	6	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb. 28	6		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-Feb. 28	66	16	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Feb. 26			Cases, 8; deaths, 6.
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 48.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Feb. 19	3	1	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-20	86		
Algiers	Dec. 11-31	4		
Do	Jan. 1-Mar. 10	8		
Angola	Oct. 1-15			Present in Congo district.
Cuanza Norte	Nov. 1-15			Present.
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Mar. 19	63	31	
Sao Paulo	Aug. 23-Dec. 5	34	18	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Mar. 26			Cases, 501.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Mar. 26	177		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Apr. 2	40	1	
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 20	7		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Mar. 12	20		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Mar. 5	7		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Mar. 26	257		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Mar. 26	6		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Apr. 2	74	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Mar. 12	45		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-Feb. 26	2		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Feb. 19			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Feb. 19			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 8	56	38	
Manchuria—				
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 20-Feb. 26		2	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-Feb. 26	20		
Chosen	Aug. 1-Nov. 30	53	19	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Feb. 20	17	3	
French Settlements in India	Aug. 29-Dec. 18	118	118	
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Mar. 26			Cases, 5,749.
Birmingham	Mar. 13-19	5		
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Dundee	Mar. 31	42		
Monmouthshire	Feb. 25	22		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Great Britain—Continued.				
England and Wales—Con.				
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Mar. 12	16		
Normanton	Dec. 30	1		9 miles from Leeds
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Mar. 19	523		
Wakefield	Jan. 30-Feb. 2	2		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-Feb. 28		51	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,006.
Do	Jan. 2-Feb. 5			Cases, 25,386; deaths, 6,222.
Bombay	Nov. 7-Jan. 1	37	20	
Do	Jan. 2-Mar. 5	294	155	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-Mar. 5	1,340	961	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Mar. 5	32	25	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Mar. 12	213	6	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Mar. 5	149	29	
Indo-China:				
Saigon	Dec. 26-Jan. 1	3		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-Feb. 12	3		
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Feb. 12	95		Do.
Japan	Oct. 24-Dec. 25	25		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 4		4	
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Feb. 26	5		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Apr. 2		25	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Nov. 30	78	4	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Poland	Oct. 11-Dec. 31			Cases, 32; deaths. 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Mar. 26	31		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Mar. 6	3		
Siam	Apr. 1-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Feb. 26			Cases, 50; deaths, 21.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Feb. 26	27	18	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Mar. 19	7		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-20	8		
Tunis	Jan. 1-Mar. 10	3		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-20			Cases, 21.
Algiers	Feb. 1-Mar. 10	22		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Chile	Sept. 15-Nov. 15	39	4	
Concepcion	do	1		
Do	Jan. 23-29		1	
Lebu	Sept. 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	do	18	2	
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Mar. 19	5	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Nov. 30	43	2	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do	Jan. 1-Feb. 28	48		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-28	1		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-31	7		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-28	4		
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Mexico	July 1-Oct. 31			Deaths, 534.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Mar. 19	60		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Feb. 12			Cases, 414; deaths, 32.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-20	21		
Tunis	Jan. 21-31	1		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-31	38	4	
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 22, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 19	12	3	
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Feb. 28	65	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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SPECIAL ARTICLES

Typhoid Epidemic Caused by Polluted Water Supply
A Study of the Literature Relating to Posture
Reports of the Health Section of the League of Nations

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

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REPORT OF A TYPHOID EPIDEMIC IN GRAFTON, W. VA., DURING THE WINTER OF 1926-27

By E. S. Tisdale, *Director, Division of Sanitary Engineering, West Virginia State Department of Health*

During December, 1926, and January, 1927, Grafton, W. Va., suffered from a disastrous typhoid fever epidemic, which was due to a polluted public water supply. More than 150 cases of typhoid fever developed and 25 deaths occurred, according to the records obtained by the sanitary engineers, J. B. Harrington and E. S. Tisdale, detailed to investigate the epidemic by Dr. W. T. Henshaw, State Health Commissioner.

Accompanying the typhoid infection, which was unusually virulent for a water-borne infection, as indicated by the proportion of deaths to number of cases, there occurred a large number of cases of intestinal disorders of five or six days' duration.

The sanitary engineers visited Grafton following an appeal for help from Dr. F. S. Suddarth, the school physician. Case data were gathered by personal visits to all physicians and the attention of the engineers was immediately directed to the city water supply, since the cases were distributed throughout the town wherever the city water mains ran, and no other common food or milk supply was found.

WATER SUPPLY CONDITIONS

Grafton obtains its water supply from a mountain stream, the Tygarts Valley River. Five years previously, the State Health Department, in cooperation with the city authorities and the chamber of commerce, had staged an intensive educational campaign on the need of the water filtration for Grafton. The bond issue was defeated, however, and the only protection which the State health department could secure was chlorine disinfection. It had almost been necessary to have recourse to the courts to obtain the installation of a chlorinator.

On December 28, 1926, the sanitary engineers visited the pump station and found chlorination being practiced, but at a low rate of dosage. The river was very high and muddy, as had been the case during November and December, due to an abnormally high rainfall rate. The chlorinator was partially crippled, and no test could be obtained for residual chlorine in the treated water at the pump

station. The rate of dosage was immediately raised to 15 pounds per 24 hours to treat 2,000,000 gallons of water pumped daily. The rate of dosage was increased at 9 a. m., and by noon a marked residual chlorine test was obtained in the city mains several miles away in Grafton.

Further investigation disclosed the fact that the chlorine apparatus, the sole safeguard of the supply, had been giving trouble during the preceding month and had been shut down for repairs, and treatment of the water supply had not been continuous nor at a high enough rate of dosage. The full-time city and county health officer had, during his term of office, carefully watched the water supply, sent samples regularly to the State laboratory for bacteriological test, and checked up consistently on the chlorine treatment. The full-time health work had been discontinued by the county court as an economy measure some months previous to this epidemic; consequently, the careful supervision of the water supply, requiring the water department to treat it regularly with chlorine, was neglected.

WATERSHED CONDITIONS

The facts as to specific pollution on the watershed of the river above the Grafton water intake were next investigated. Dr. C. B. Williams, county health officer of an adjoining county, reported that he had had 5 cases of typhoid fever at Philippi, 30 miles up steam, in the late fall, and at Arden, 20 miles up stream from Grafton, 8 or 10 virulent typhoid cases had been reported to him during October and November, 1926. Two young men had died of typhoid fever, at Arden. No care was taken in disposing of the stools of typhoid patients at Arden; they had been thrown out on the banks of a small stream leading to the river. Examination of the rainfall records from the Government Weather Bureau station at Elkins, nearby, indicated that heavy rains had occurred during the second and third weeks of November, a period preceding the time of development of greatest number of typhoid cases at Grafton by two to three weeks. The picture is, therefore, complete for a water-borne typhoid outbreak. The Tygarts Valley River rose during the latter part of November, 1926, bringing the typhoid discharges at Arden direct to the Grafton water supply intake. The disease-laden water, without disinfection or with incomplete treatment, went directly into the Grafton city mains and caused typhoid fever in every area in Grafton served by the mains.

PREVENTIVE MEASURES

The preventive measures adopted included the following:

1. Free typhoid inoculation was offered to all the school children of Grafton by the school authorities and was given systematically in daily scheduled clinics.

2. Repairs to the chlorinating apparatus were made so that the amount of chlorine being fed could be observed directly by the pump-station operator.

3. The rate of chlorine treatment was increased and records were kept by hourly observations on the amounts of chlorine used and tests for residual chlorine in the water in city mains.

4. Immediate steps were taken to retain a competent water-works engineer to draw up plans for a modern filtration plant and the State legislature was asked to pass a special emergency bill allowing a special levy to be laid by the city authorities to finance the construction program.

5. As Grafton is a railroad water-supply point for water used on the Baltimore & Ohio Railroad for drinking purposes on trains in interstate traffic, special emphasis was laid on the safeguarding of this water supply. The system used consisted of double filtration of the city water through two pressure filters. The State health department required an additional chlorinating apparatus to be installed on this railroad water supply after it passed the pressure filters and the keeping of daily reports on filter and chlorinator operation, together with residual tests for chlorine. Good cooperation was secured from the Baltimore & Ohio Railroad in this respect.

6. Furthermore, the department urged that the city and county reestablish the full-time health unit which had done such good and effective work in the past and had been discontinued because of a desire for economy.

A typhoid epidemic costing 25 deaths and 150 cases of sickness, not to mention the anguish and suffering, is rather costly economy. The economic loss to Grafton due to this outbreak of water-borne typhoid fever cost the community close to $200,000, figuring the matter conservatively.

A RÉSUMÉ, WITH COMMENTS, OF THE AVAILABLE LITERATURE RELATING TO POSTURE

By Louis Schwartz, *Surgeon, United States Public Health Service*

DEVELOPMENT OF THE BIPED POSTURE

It is generally accepted by anthropologists that the erect biped carriage of man has gradually evolved from an original horizontal quadruped posture, and they prove this by evidences in the human body itself.

Clevenger (28) showed that the valves in the veins are so placed as to function best in the quadruped posture. Baker (7) states that he found the levator claviculæ present in some negroes and says that normally it is represented as a vestigial remain in the human

body by the cervical fascia. He adds that ontogeny also gives testimony to the assumption that we once walked on all fours, since the child first walks on all fours and requires about two years gradually to learn to walk erect. Testut (136) says that he found the dorso-epitrochlearis, a muscle used in swinging from branch to branch, developed in the Bushman and that in the body it is normally represented as a fibrous strap uniting the latissimus dorsi to the triceps. He states that remains of the ligamentum nuchæ which keep the head suspended in animals which walk on all fours are also found in the body. The occasional presence of cervical ribs he interprets as evidence that at one time our ancestors had such a structure.

Gerhartz (46) points out that there are other animals besides anthropoids that at times assume the erect posture—the bear, for example, and some birds also walk upright, as the penguin—and from experiments on dogs he concludes that man probably came to walk upright because his pelvis was adaptable to that posture and that it was possible for him to maintain this posture because of the great development of the sacrum and its rigid union with the pelvis. He assumes that man chose to continue the erect posture because it left his hands free for purposes other than locomotion, and that it was probably the man who lived on the plains who first permanently adopted the erect posture because the plains are better suited for locomotion in the erect posture than are the woods and hills. Gerhartz (46) further states that an increase in the number and size of the sacral vertebræ favors the development of the erect posture, and that there is a tendency shown by the human skeleton to include the fifth lumbar vertebra in the sacrum, and in this he sees the tendency of evolution toward a future type of erect man.

SPINAL CURVES

Klapp (73) points out the fact that mammals, with the exception of man and possibly of anthropoids, have only one curve, a kyphosis, to the spinal column. Cunningham (34) shows that in the anthropoids the curves are less developed than in man and says that in the lower races of man the lumbar curve is less developed than it is in the European. Wiedersheim (146) finds that in the Veddas, a primitive people of Ceylon, the curves of the spine are not marked.

All of the above-mentioned anthropologists agree that the curves of the spine are adapted to balancing the trunk on the femur and that they result from the effort to place the center of gravity behind the sacro-iliac articulation and behind the axis of the hip joint. The gluteals, the gastrocnemius, and the muscles of the thigh, especially the quadriceps extensor, must be enormously developed in order to maintain this posture. Cunningham (34), as well as Baker (7), says that the lumbar curve is more firmly stamped upon the

spine of the European than upon the spine of the savage and gives it rigidity; that in the life of the European, which rarely necessitates forsaking the erect posture, flexibility in the lumbar column has been sacrificed for stability, while in the savage whose life requires agility and suppleness, the anthropoid conditions of the vertebræ have been preserved and he possesses a superior flexibility of the lumbar curve. Hence, the lumbar curve is regarded as a sign of advance in the scale of evolution, and absence or diminished depth of it as showing incomplete adaptability to the erect posture.

These conceptions seem to be corroborated by ontogeny, because the spine of the child is at first straight and it is only when it begins to lift its head, to sit up, to stand, and, finally, to walk, that the curves of the spine become fully developed. Grossman (63) states that "the new-born child has only one curve to its spinal column. This curve has its convexity backward. After a child begins to lift its head at the age of three or four months, the cervical spine changes to a position of lordosis. At the end of the first year, when the child begins to walk, the muscles of the back arising from the sacrum and, inserting into the lower dorsal region of the spine, shape the spine into a position of lordosis in the lumbar region. Thus the original kyphotic spine acquires a lordosis of the cervical and lumbar regions and a kyphosis in the dorsal region."

CHANGES IN THE BODY THAT HAVE TAKEN PLACE AS A RESULT OF THE ERECT POSTURE

Magnus has contributed important fundamental data regarding the physiology of posture. He defines posture as being an active process, the result of the cooperation of a great number of reflexes, but points out that the study of the way in which these reflexes, act toward providing the erect posture in man is still in its infancy. He shows, however, that three of these important reflexes, namely, labyrinthine righting, neck righting, and optical righting reflexes can be demonstrated in man as in animals.

Practically nothing is known, however, of the part that this cooperation of reflexes plays in the development of different types of posture.

Baker (7) says that as a result of the erect posture there has occurred a change in the shape and size of the feet. They have become larger and have developed arches. The great toe is larger, the heel bone is stronger, and the arch is higher in the European than in the savage. Cunningham (34) says that as a result of the erect posture the curves of the spine have developed, and as the adaptation to the erect posture became better their depth and size have increased. As a result of these curves changes have taken place in the bodies of the vertebræ. They have become molded to these curves. The lumbar

vertebræ have become deeper in front and, as a result, bending forward in the lumbar region is more restricted. Wiedersheim (145) states that the pelvis has become broader and flatter and stronger, that the cervical ribs have disappeared, and that there are signs which show the tendency to disappearance of the first dorsal ribs, and this will result in diminishing the size of the lungs. Further, in order to maintain the erect posture, the muscles of the calf, buttocks, thighs, and the erector spinæ mass have become enormously developed.

DISADVANTAGES OF THE ERECT POSTURE

Rudolph Klapp (73) says that the fact that the human body has not yet had time fully to adapt itself to the erect posture has resulted in many physical disadvantages. W. C. Mackenzie (81) also says that if generalizations were to be made about the causes of human diseases, it would be along the line of failure of accommodation to the erect posture. The inadequate support of the abdominal organs by the belly walls in the erect posture accounts for inguinal hernia, displacements of the uterus and the kidneys, and visceroptosis. Leonard Williams (148) states that, in the horizontal posture, the primates' organs, the heart and lungs as well as the spleen, liver, kidneys, and stomach, found a sufficiently solid floor upon the ribs; the uterus and the ovaries rested on the bony pelvis, and the intestines had gravity to aid the abdominal wall to support them, because the primate was higher behind than in front. The erect posture has changed all this. The transverse colon is suspended between two acute angles and tends to form a stagnant cesspool. The thyroid gland, the genitals, and the great vessels of the thigh, forearm, and abdomen are exposed to injury in the erect posture.

Baker (7) points out that stone in the bladder is partly due to the erect posture, because concretions do not gather at the opening of the bladder, as they would in the horizontal posture, but fall back into the cul-de-sac and there grow in size. The appendix in the horizontal posture is so placed that gravity frees it from fecal accummulation. The ascending colon in the erect posture must lift its contents against gravity. The liver hanging from the diaphragm, and the diaphragm adhering to the pericardium, which is continuous with the deep fascia of the neck, makes it so that the liver, in effect, hangs from the top of the thorax and the base of the skull. This tends to restrict the action of the lungs and favors the development of tuberculosis. The erect posture also throws a great strain on the circulation, which may result in congestion of the liver and cardiac dropsy. The rapid delivery of the blood in the descending vena cava may result in syncope, if the heart action for any reason is lessened. Cerebral hemorrhage is also favored by the extreme variations in blood pressure due to the erect posture. The tendency to edema of

depending parts and to varicose veins is also favored by the erect posture.

Klapp (73) says that the weight of the body pressing on the vertebrae in the erect posture predisposes to the development of scoliosis and Pott's disease. J. Knox Thompson (138) says that the quadruped position is best suited for drainage from the sinuses of the head, therefore middle ear disease, mastoiditis, and sinusitis are aggravated by the erect posture. The origin of spitting and the development of nasal and tracheal catarrh are also attributed to the erect posture by Thompson. Klapp (73) says that the disadvantages of the erect posture are intensified by the weakening effect on the connective tissue of the body occasioned by civilization which restricts the natural exercises.

ADVANTAGES OF THE ERECT POSTURE

The upright gait brought enormous mental and physical advantages. The hands were no longer needed for locomotion, and as a result they were used for the development of writing, art, literature, and the sciences. The range of vision and hearing was increased and these senses were, to a large extent, substituted for smell, leading up to a psychology based rather on sight and hearing than on smell, and thus to the development of art and music. (J. Knox Thompson (138).) The better drainage from the brain may explain the distinction between the intelligence of animals and the intellect of man. (Leonard Williams (148).)

CAUSES OF POSTURAL DISEASES

Klapp (73) says that if the body of man were completely adapted to the erect posture, postural diseases would not occur. Even as it is, postural diseases would be rarer if man lived purely the primitive life, because his habits would then result in the development of those muscles which are required to keep his organs properly functioning in the erect posture. Primitive peoples suffer none of the diseases, such as scoliosis, varicosities, etc., the etiology of which goes back to the erect posture. But when the customs of civilization are implanted on primitive races they soon become subject to the same diseases as are civilized peoples. It seems that civilization, by its customs of living, which limit the natural exercises of our muscles, predisposes to a degeneration of connective tissue which, combined with the imperfect adaptation of our bodies to the erect posture, is the basic cause of postural diseases.

DEFINITIONS OF CORRECT POSTURE

The art of the Greeks has had a great influence on the ideas of correct posture. Goldthwait (58) assumes that the ancient Greek statues are models of perfect posture. Seaver (115) points out that

that the shape of the body determines the location of the center of gravity. A protuberant abdomen tends to cause the body to fall forward so that obese or pregnant women must hold the head and shoulders back in order to keep the plumb line within the area covered by the feet. The contrary is true of a burden on the back.

Lloyd T. Brown (20) says that few people agree as to what is good posture and what is not.

TESTS FOR CORRECT POSTURE

The tests and standards for posture differ somewhat from each other and place stress on the position and shape of various parts of the body. The straight-line test is the most familiar one used to test posture. According to this, a plumb line from the external auditory meatus should pass through the tip of the shoulder, the hip joint, and the middle of the foot. This test is based on the theory that the principal segments of the body should be balanced evenly on the base of support, and, hence, their long axes should be a continuous straight line.

Crampton (32) places the subject with the back against the wall and states that in his natural posture, if it is correct, the hands should fit snugly between the lumbar curve and the wall; and when the subject is placed with the toes against the wall, then if the posture is correct, the chest will touch the wall but the abdomen will not.

Bancroft (8) advocates the triple test in which the teacher judges the posture of the child while it is standing, walking, and sitting.

Rowe (108) obtains the percentage of posture by dividing the length of the body when vertical by the length of the body when horizontal.

APPARATUS USED IN TESTING POSTURE

To record and test posture, the pantograph, the schematograph, the photograph, and the lead tape have been used. The schematograph is an instrument very similar to a camera; but instead of a film, the image is traced on a piece of paper fitted over the ground glass. The lead tape is used to determine the shape of the spine and the depth of the spinal curves and also the costal angle.

All these tests and standards of posture are made with the person in a fixed position with the arms at the sides and the feet alongside of each other more or less parallel. This posture or any other fixed posture, as Shafer (117) says, can not be held for any length of time without fatigue.

TYPES OF BUILD

The fact that there are many types of normal build and that these types differ from each other not only in framework and musculature, but also in the size and shape and position of the internal organs, is

recognized by many writers on posture. Not only do the types of build differ in different individuals (Davenport (35)), but they differ in the same individual at different age periods. The proportions of the different segments of the body change normally in the same individual up to the age of full maturity. In the child, the head and trunk are large compared to the limbs. The shape of the child's chest is different from that of the adult. It is comparatively deeper antero-posteriorly and narrower laterally—more keel shaped. (Klapp (73).) As the child grows, its limbs grow proportionately faster than its trunk up to 11 to 15 years of age, depending on the race and sex. After this the trunk grows faster. (Hrklicka and Gray (62).)

Robert Bennett Bean (12) notes that there are different rates of growth of the torso at different ages and different rates of growth exist between boys and girls of the same age. He says that the proportion between the length of the torso and the length of the limbs remains practically constant between the age of 25 and 60, but that after 60, the torso decreases in size more than the limbs, this change being due to shrinkage of the muscles and intervertebral disks and slight shrinkage of the long bones. The sitting-height index varies with race, type of build, stature, sex, and age.

Shafer (117), in his comments on the efforts of the various experimentors to find the center of gravity of the body, says that no two individuals have the same build.

Robert M. Osgood (106) divides types of build into stout, the placid, heavy herbivorous hyper-ontomorph and the light, slender, lank carnivorous hypo-ontomorph, and the neutral or meso ontomorph.

Kretschmer (74) divides physiques into three types—the asthenic, the athletic, and the pyknic.

Mills (90) describes four types of build—the hyper-sthenic, which is of massive powerful physique with great body weight and heavy bony framework, and the asthenic, which is of frail and slender physique, and between these two he has the sthenic, which resembles the hyper-sthenic but is less marked in degree, and the hypo-sthenic, which resembles the asthenic but is less marked in degree.

Bradford (17) recognizes that there are different types of builds when she states that the exercises devised by W. Curtis Adams have a tendency to enable a person to fill out "his own mold."

Dickson (38) recognized different types of build when he says that one out of five are of the long, slender type of build.

Mankell (83) says that the lines by which good posture are measured are necessarily somewhat indefinite, because individuals differ somewhat in build.

Crampton (32) speaks of the Alpine and Riparian types of build.

Sargent (112) recognizes that different types of build tend for excellence in different forms of athletics.

Davenport (35) obtains an index of build by dividing the weight of an individual by the square of the height and multiplying the result by 1,000. According to this index, he classifies types of build into very slender, slender, medium, fleshy, and very fleshy.

Goldthwait (57) recognizes types of build and divides them into the slender type, the stocky heavy type, and the normal type, which is in between the other two.

George T. Stevens (127) says that the shape of the cranium tends to determine the posture, because different shaped heads have different normal planes of vision, and those with low visual planes find it easier to throw the head backward than to elevate the eyes. On the contrary, those with high visual planes prefer to throw the forehead in advance and lower the chin onto the breast rather than to maintain a tension on the eye muscles to pull the eyes down. These positions of the head influence the whole posture. He says that those with broad heads and with long heads usually have the forehead thrust back and the chin elevated because they have low normal visual planes, whereas tall heads and mesocephalic heads have high visual planes and, as a result, carry the shoulders bent forward, the head leaning forward, the chest compressed, and walk with a stoop.

Life insurance officials recognize differences in types of build, and in an article based on the records of life insurance companies it is stated that overweight in the types that have long bodies and large chests is not so detrimental to longevity as it is in those having short bodies and small chests. (Public Health Reports, June 8, 1923.)

DEPTH OF SPINAL CURVES IN RELATION TO CORRECT POSTURE

There seems to be no definite standard for the depth of the spinal curves in correct posture. J. Madison Taylor (134) says that a back with a little more antero-posterior curvature than is normal for a child of 10 years is one of the features of good posture.

Crampton (32) says that the depth of the lumbar curve in correct posture should be just great enough to allow the hand to fit snugly between the lumbar curve and the wall, when the patient is standing with his back and heels directly against the wall.

Goldthwait (56), Mosher (94), and Thomas (137) say that an exaggerated lumbar curve causes sway back and poor posture, the weight of the body being borne on the heels instead of the balls of the feet, resulting in sunken chest and protruding abdomen.

Goldthwait and Thomas (137) say that increased dorsal curve causes narrowing of the ribs and round shoulders and that by correcting the depth of the cervical curve by changing the position of the

head, the organs of the body can be raised an inch or more, while Banning (10) says that, in the healthy trunk, the lumbar region or small of the back should be quite hollow and the shoulders or dorsal region have quite a prominence behind, so as to counteract the gravitating influence of the abdomen in front of the spine. He claims that the small of the back is the center of gravity of the body and states that the head should be so carried as to bring the law of gravity to the aid of the trunk in maintaining the body in its proper position.

HEREDITY

Davenport (35) showed that type of build is inherited.

Robert Bennett Bean (12) recognizes that different races have different types of build, as is shown by differences in the sitting-height index.

Sargent (112) recognized heredity of type of build when he said that "ancestry and nurture prescribe the limit of stature and weight."

Goldthwait (56) recognizes that heredity influences type of build when he states that the "John Bull" type is the inherited type in England and also when he says that human beings have types of build just as in the horse family there are truck horses, family horses, and race horses, each splendid for its type, but it is impossible to change one into the other.

Crampton (32) recognizes the influence of heredity on the type of build when he speaks of the Alpine and the Riparian types.

Cunningham (34) proves that the shapes of the vertebræ are inherited and, hence, the degree of the lumbar curve is inherited.

Graves (60) proves that the shape of the scapulæ is inherited.

(Author's comment: While it is generally recognized that heredity plays an important part in the type of build of an individual and that the type of build greatly influences the posture, yet standards and definitions of correct posture have not taken these facts into consideration. They have endeavored to apply one standard to all types of build, instead of having separate standards for each type, and posture enthusiasts have endeavored, by means of exercises, to change all types of build into one type—that which they think is the only one compatible with good posture.)

CAUSES OF BAD POSTURE

Bulwer (21) attributed bad posture to faulty styles of clothing and mistaken ideas of beauty.

Andre (54), as early as 1741, enumerated most of the conditions which are now recognized as causing bad posture.

Most modern students of posture mention muscular weakness or diminished muscle tone as important causes of faulty posture.

Crampton (33) says that bad posture is essentially a group of ptoses and evidence of low vitality, and that anything that lowers the vitality increases the tendency to faulty posture.

Grossman (63) says that incorrect posture is very rare in children who are in good physical condition; that it occurs mostly in children who are lacking in general vigor and muscular development, and that continuous harmonious cooperation of numerous muscles is essential to retaining the spine in its normal position.

Banning (10) says that spinal curvature is due to lack of exercise and faulty habits of sitting and standing.

Keith (72) says that it is lack of strength on the part of the muscles of the abdominal wall that causes enteroptosis.

Stella S. Bradford (17) says that posture or poise is the natural sequence of flexibility and symmetrically developed muscles. If the joints are rendered flexible and the muscles symmetrically developed, poise will naturally result.

Mills (90) goes as far as to say that muscle tone determines the form of the alimentary tract. In heavy, powerful individuals, muscle tone is good, hence the stomach is hypertonic in form and the transverse colon is high in position. In frail and slender types, the muscle tone is poor, resulting in pendant stomach and low transverse colon. He says that the degree of strength and tone of the skeletal muscles also exerts an influence on visceral topography, as does the degree of nutrition.

E. H. Bradford (16) attributes round shoulders to muscular weakness of the spinal column.

Bancroft (8) says that poor posture is characteristic and impressive of weak physical power.

Lowman (80) states that posturally relaxed children usually have more or less weakened and overstretched ligaments or muscles.

Osgood (106) states that children in factories develop bad posture because they become fatigued. The lack of opportunity to relax causes tired muscles and excessive fatigue, and this results in bad posture and deformity.

E. Blanche Sterling (125) examined 1,115 school children in the first grades and found that 31 per cent of those with good nutrition throughout the school year had good posture and of those with poor nutrition during the same period, only 22 per cent had good posture.

Goldthwait (57) and Thomas (137) say that the principal cause of round shoulders is weak muscles.

Goldthwait (57) and Mosher (96) also emphasize the occurrence of muscular weakness with faulty posture.

The premature employment of children, long continued standing or sitting either in school or at work, or anything else that may

cause fatigue, are recognized as causes of bad posture by several of the State laws for the regulation of labor.

Talbot (128) says that fatigue and poor posture go hand in hand.

Improper clothing and shoes are also given as causes for bad posture (La Fetra (75)), and the American Posture League has gone to considerable work in trying to improve clothing and shoes.

Improper school furniture and improper industrial furniture are also recognized as causes of faulty posture. Faulty habits of posture are given as causes of permanent postural defects. (Mosher (100).)

Occupation as a cause of postural deformity is emphasized by O'Ferrall (105), and he gives as examples the posture of seamstresses, stenographers, stone cutters and clerks.

Flat foot is given as a cause for faulty posture by Mankell and Lowman (80).

Defective vision and improper lighting as causes of faulty posture are emphasized by Abbott (1) and Alger (4).

The habitual carrying of weights on one side of the body, such as school books, the carrying of children by nursemaids or heavy weights by laborers is also given as a cause of postural deformity by most of these writers on posture.

Heredity as a cause of bad posture is pointed out by Goldthwait (57), Mosher (94), and Bancroft (9) when they state that the long slender types of build are the ones that are most liable to faulty posture.

J. Madison Taylor (133) says that right posture and attitude depend for their integrity on the neuro-muscular mechanism, which is dependent on balanced nutrition and poised metabolism, and the whole is regulated by the ductless glands.

Klapp (73) sums up the causes of bad posture by stating that it is all due to connective tissue weakness.

The sum total of all these causes of bad posture seems to be heredity and defective environment which result in poor health and bodily weakness.

NOMENCLATURE OF POSTURE

There have been many names given to faulty types of posture, outside of such names as scoliosis, lordosis, and kyphosis, the meaning of which is self-evident.

Crampton (33) calls all faulty posture a ptosis, or slump.

Bancroft (9) speaks of the fatigue, the relaxed or slump posture, and of the bantam posture.

Mosher (94) emphasizes the "slouch posture" in which the body weight is borne mostly on one leg, with one hip and one shoulder higher than the other.

Truslow (37) speaks of the "kangaroo type" and the "gorilla type." He states that, in the kangaroo type, most of the pivotal

structures of the trunk are carried in front of the line of gravity and those of the lower extremities are behind the line of gravity. The pelvis rotates forward and downward. In the gorilla type most of the pivotal structures of the trunk are carried back of the line of gravity and those of the lower extremities in front of the line of gravity. The pelvis rotates backward and downward. In the kangaroo type, there is forward displacement of the abdominal and pelvic viscera, and in the gorilla type there is backward and downward displacement of the abdominal and pelvic viscera.

Lovett (107) speaks of the round back and of the round hollow back and the round upper back.

Mankell (84) speaks of the exaggerated lumbar curve posture.

RESULTS OF BAD POSTURE

John Bulwer (21), in 1650, published a book in which he described some of the faulty ideas of posture which were prevalent in his day and the physical illnesses resulting therefrom.

In 1741, M. Andre (54) wrote a book called "Orthopædia," in which he described the evil results of bad posture and gave rules for obtaining good posture.

According to Mosher (94), enteroptosis and its train of symptoms, such as constipation, flatulence, and digestive disorders, malpositions of the uterus, and tuberculosis, are caused by faulty posture. Mosher also holds that the posture and general body shape of idiots and defectives indicate a close relation between the lack of brain development and habit posture, and that faulty posture hastens senility and is a very frequent cause of hernia.

Banning (10) says that relaxation of the abdominal and spinal muscles causes ptosis of the viscera.

James Warren Seaver (114), as a result of the study of the stomachs of 83 children, concludes, among other things, that posture has little to do with ptosis of the stomach.

Orthopedists, such as Rugh (109), Goldthwait (55), and Truslow (37), emphasize the fact that faulty types of posture cause strains of joints and ligaments. Sacro-iliac, knee, and foot strain as a result of faulty posture are stressed by Truslow. Strains of the spine, of the neck, the pelvic joints, and the knees are emphasized by Goldthwait. Rugh says that faulty posture causes strain of the back.

Albuminuria has been attributed to faulty posture by Brown (19) and Klapp (73). Klapp quotes Jehle and Tandler as having shown that albuminuria occurs between the ages of 7 and 14 in individuals who have abnormal lumbar lordosis in the upper third of the lumbar column and whose ligaments, muscles, and bones are weakened.

Crampton (33) states that the ptosis of the organs which results from faulty posture causes impairment of the circulation.

M. Hertz (152) (Therapie der Gegenwart, June 1908, No. 6 p. 241), says that stooping posture interferes with cardiac function.

The relaxation of the abdominal muscles and of the diaphragm resulting in visceroptosis is mentioned by many writers as caused by faulty posture. Fatigue is also mentioned by many writers as being caused by faulty posture.

To sum up, the most serious results of bad posture mentioned by the above writers are visceroptosis, tuberculosis, albuminuria, impairment of the circulation, strains of joints and ligaments, and nervous derangements.

HOW TO OBTAIN CORRECT POSTURE

Mosher (100) says that the habit of correct posture must be formed early in life by teaching children the proper methods of standing and walking. She says that, in order to obtain normal poise in standing, the feet should be placed side by side, or better, one foot a short step in advance, with the toes pointing forward. Rest the weight of the body heavily on the balls of the feet and lightly on the heels. Raise the head high with the chin in and then relax, retaining this position. In sitting, elevate the pelvis and hold the head high and when bending, rock forward, holding the head and trunk in one piece instead of doubling at the waist.

Community setting-up drills and athletic games to promote health and vigor, posture training in the schools, proper school furniture, and hygienic clothing are advocated by Goldthwait (55), Bancroft (9), and Mosher (100), as aiding in the attainment of good posture.

Thomas and Goldthwait (137) say that, to correct poor posture, systematic training must be instituted to gain two objects—muscular sense and muscular strength. Physical training should be devoted to the development of the trunk muscles, which are the keynote to good posture.

Stella S. Bradford (17) advocates exercises for symmetrical muscular development in order to obtain correct posture.

Grossman (63) says that the general hygienic conditions must be good and that there must be proper food and exercises and development of both sides of the body in work and play in order to attain good posture.

Crampton (33) advises proper food, plenty of air, and exercise for the development of muscular tone in order to attain good posture.

Abbott (1) and Alger (4) stress proper lighting conditions and the correction of visual defects for the attainment of good posture.

Todd (139) stresses the freedom of action of the muscles around the hip joint and freedom of movement of the hip joint in order to attain good posture.

J. M. Taylor (135) gives the following exercises to be repeated in order to obtain good posture: Clasp the hands behind the back, pulling apart strongly and pushing the arms forcibly down, at the same time thrusting up the chin vertically. Repeat with steady increments of force.

De Forrest P. Willard (147) says that the attainment of the military posture by gradual training, which strengthens the muscles, is a cure for postural defects.

Samuel Hare (64) says that exercise gives tone and strength to the muscles, resistance to the ligaments, and density to the bones, thus tending to prevent deformity.

Eldred Noble Smith (120) says that educators should not insist that children take forced upright postures. It is better to allow them to take any position desired. He says that there should be proper school furniture, but that it would be better still if there were no seats or desks provided for the pupils, but couches so that the children could rest prone and thus avoid spinal curvature.

R. J. Cook (29) says that general exercise has little influence on improving postural defects, although it strengthens the individual. He advocates corrective gymnastics for faulty posture with the general plan of stretching contracted muscles and increasing the tone of the trunk muscles.

R. M. Osgood (106) advocates the development of good muscular tone in order to attain good posture.

Orthopedists use mechanical and surgical means for the correction of postural deformities and give exercises to strengthen weakened muscles and to stretch contracted muscles.

Proper hygienic methods of living and dressing, properly constructed school and industrial furniture, the assuming of correct posture, and the taking of suitable exercises for the development of good muscular tone are the principal methods given for attaining good posture.

BENEFITS OF GOOD POSTURE

All of the diseases which are caused by bad posture are mentioned by various authors as benefited or cured by good posture.

J. M. Taylor (135) says the more promptly an individual returns to the orthograde posture after departure from it, the more are the factors of vital rhythm, ebb, and flow of fluids, respiration and oxygenation encouraged and economized.

Goldthwait (54) and Mosher (94) state that all the functions of the body are best carried on in the correct posture. The bones of the skeleton are placed most advantageously for the work of the muscles and all the organs are in the best position for the performance of their functions. They say that the correct posture prevents

visceroptosis and even though visceroptosis is congenitally present, correct posture helps the prolapsed organs to function properly. They also state that the correct posture tends to prevent and helps to cure tuberculosis.

Keith (72) also emphasizes the fact that the attainment of good posture tends to cure visceroptosis.

H. L. Taylor (129) says that the Committee of the American Posture League showed that the assuming of the correct erect posture raised the internal organs from 1 to 3 inches.

Bancroft (9) states that only in the perfect erect posture are organs able properly to perform their work. It is the posture of greatest efficiency and vigor and prevents the debility of old age.

William James (153), the psychologist, says that the erect posture keeps up the spirits and tends to banish fear, despondency, and depressing thoughts.

Geis (45) is of the opinion that the way to increase vital efficiency is by means of physical attitude, that is, to adopt an attitude that augments the normal habitual capacity of the lungs.

POSTURE AND BRAIN ACTIVITY

Leonard Hill, in "Cerebral Circulation," London 1896, page 78, states that mental diseases of various types have peculiar bodily postures. James (153) in "Principles of Psychology," volume 2, page 463, states that bodily postures definitely influence the emotions. Shafer's (117) "Physiology," volume 2, page 90, says that a rise in arterial pressure produces an increased velocity of blood in the brain. Erlanger and Hooker in the American Journal of Physiology, volume 10, 1903, show that the blood flow per heart beat is greatest in recumbent posture. This would indicate that the intellectuality is greatest in the recumbent posture. Mosher (97) states that idiots, imbeciles, and certain abnormal and mental states are characterized by peculiar attitudes. E. E. Jones (71), in an experiment, sent letters to noted men asking them in what postures they did their best work and found that 65 per cent worked best in the horizontal posture. The postures of the other 35 per cent were various and difficult to classify. Jones (153) also found by experiments that pitch is best discriminated in the vertical posture and that the strength of grip and the tapping per minute are best in the erect posture, while the tactile sense, and the visual and auditory memory are best in the horizontal posture.

Burnham (22) associates posture with various conditions of thought, such as the erect posture and highly poised head of cautious attention; the bent body and raised head of alert attention in watching for a sudden stroke of an adversary. He says that what we call good posture seems to be most efficient in all forms of motor activity, but

does not seem to be most favorable in many forms of mental activity, especially in the more strictly intellectual work. He states that conditioned reflexes of the utmost significance to physical and mental health may be developed in connection with posture.

(Löwenstein (78) finds a connection between types of body build and the types of mental disturbances, decay, and degeneration. He says that when the slender and the athletic types described by Kretschmer and grouped together as schizoids have fully developed mental diseases, the intellectual centers are involved, whereas in the pyknics only periodic depressions occur which do not affect the intellectual centers. (Löwenstein, Journal American Medical Association, November, 1925, vol. 85, No. 24, page 1905.)

POSTURE AND TUBERCULOSIS

That persons with certain postures and types of build were predisposed to tuberculosis was noted by Bulwer (21) as early as 1650. He says "For they who have straight and narrow breasts are necessarily made opportune to spit of blood."

Klapp (73) says that the deep but narrow thorax is the primitive one and is ontogenetically seen in the infant and that this shape of thorax is predisposed to respiratory diseases. He also says that narrowing of the upper structure of the thorax which results from connective tissue weakness demobilizes the apices of the lungs, hinders their function, and renders them more liable to tuberculosis infection.

Goldthwait (54) says that the lungs can not be properly developed unless the body is in correct posture and that the attainment of proper posture helps in the cure of tuberculosis.

J. M. Taylor (135) says that the correct posture is the one for maximum respiratory efficiency.

Mosher (97) says that in the posture of lateral asymmetry the difference in respiratory action on the two sides is easily observed and the wide separation of ribs on the high shoulder side limits their motion and interferes with respiration at the apex of the lung and predisposes to tuberculosis. She states that she found in an examination of tuberculosis patients that the disease always began in the apex of the lung which was on the side of the high shoulder.

STATISTICAL DATA

Dixon states that, in 1915, 20 per cent of the children under 12 years of age at the orthopedic out-patient department of the University of Pennsylvania had some postural defect, and that in the Boston Hospital 44 per cent of the children had some static foot trouble.

Spence (124) examined 2,500 girls and boys in the public schools of Richmond, Va., and found that 10 per cent of them had spinal curvature.

R. J. Cook (29) examined 2,200 Yale freshmen and found 25 per cent with normal spinal curves, 50 per cent with scoliosis, 55 per cent with lordosis, 56 per cent with flat chest, and 42 per cent with prominent abdomens.

Brown (19) reports 476 Harvard freshmen examined, among whom he found 6.7 per cent with grade A posture and 80 per cent who had poor posture.

E. Blanche Sterling (125) examined 1,115 children in the first six grades of school in studying the relation between nutrition, physical defects, school grade, and physical training, and found that 29 per cent of the children had good posture, 40 per cent fair, and 31 per cent poor posture.

Lillian M. Towne (140) examined 1,484 pupils and found 13 per cent with good posture.

R. Tait McKenzie (85) found 23 per cent of lowered shoulders and 30 per cent of gorilla-type posture in the Montreal High School, and he found that 14 per cent of all the students at McGill University had similar deformities.

The Life Extension Institute, in its examination of industrial groups of more than 10,000 people actively engaged at work, found 44 per cent with generally faulty posture. Among 760 cases of low back pain in the clinic of the Massachusetts General Hospital, a large number of the cases were due to attitudinal disturbances.

TESTS FOR PHYSICAL FITNESS

There seems to be no universally accepted test for estimating physical fitness. Dreyer (39) correlates physical fitness with vital capacity. He has worked out a table in which the weight and sitting height, vital capacity and weight, vital capacity and sitting height, vital capacity, and chest measurements are correlated for men and women. He divides the normals for men into three classes, according to the occupation, and gives standards for each class. He states that 10 per cent below the standard for the vital capacity in each class indicates that the patient is suffering from some health-depressing condition.

Eugene Lyman Fiske (151) worked out a table of vital capacity per pound for all weight groups and divided it into three classes, according to the occupation. He quotes Wentworth, of the Peter Bent Brigham Hospital, who has worked out a formula that can be applied to the surface area of the body in obtaining the normal vital capacity. The surface area of the body can be ascertained from the graphic chart prepared by Dubois and Dubois. If the net weight and height are known, the surface area in square meters can be ascertained from this chart, and this multiplied by 2.5 for men and by 2 for women gives what the vital capacity should be.

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Lillian M. Towne (140) examined 1,484 pupils and found 13 per cent with good posture.

R. Tait McKenzie (85) found 23 per cent of lowered shoulders and 30 per cent of gorilla-type posture in the Montreal High School, and he found that 14 per cent of all the students at McGill University had similar deformities.

The Life Extension Institute, in its examination of industrial groups of more than 10,000 people actively engaged at work, found 44 per cent with generally faulty posture. Among 760 cases of low back pain in the clinic of the Massachusetts General Hospital, a large number of the cases were due to attitudinal disturbances.

TESTS FOR PHYSICAL FITNESS

There seems to be no universally accepted test for estimating physical fitness. Dreyer (39) correlates physical fitness with vital capacity. He has worked out a table in which the weight and sitting height, vital capacity and weight, vital capacity and sitting height, vital capacity, and chest measurements are correlated for men and women. He divides the normals for men into three classes, according to the occupation, and gives standards for each class. He states that 10 per cent below the standard for the vital capacity in each class indicates that the patient is suffering from some health-depressing condition.

Eugene Lyman Fiske (151) worked out a table of vital capacity per pound for all weight groups and divided it into three classes, according to the occupation. He quotes Wentworth, of the Peter Bent Brigham Hospital, who has worked out a formula that can be applied to the surface area of the body in obtaining the normal vital capacity. The surface area of the body can be ascertained from the graphic chart prepared by Dubois and Dubois. If the net weight and height are known, the surface area in square meters can be ascertained from this chart, and this multiplied by 2.5 for men and by 2 for women gives what the vital capacity should be.

Flack (150) measures physical fitness by testing the expiratory force and the expiratory fatigue and by breath holding. He measures the expiratory force by having the person blow with his greatest force into a manometer and noting the height to which the column of mercury rises. He says that fit classes should register well above 100 millimeters, yet the minimum normal is given at 80 millimeters. He tests respiratory fatigue by having the patient blow the column of mercury in the manometer to the height of 40 millimeters and noting how long he can maintain the column at that height with one breath. Fit classes should register 48 seconds, yet he gives the minimum normal of 40. The breath-holding test consists in asking the patient to take a large inspiration and holding his breath as long as possible. Fit classes should register 66 seconds and a low normal would be between 55 and 60 seconds. This test should not be given to tuberculosis or cardiac cases.

(Author's comment: Although W. M. Hastings (65) says that there is a period between 11 and 16 years of age when the flexibility of the thorax is greatest and after maturity there is a tendency to less mobility of the thorax, especially in individuals of large, well-knit frame, and although Bean (12) concludes that the mobility of the chest varies with age, hence, chest expansion and vital capacity vary with age, and the largest chest expansions are usually at the age of 14, yet age, which affects the mobility of the chest, is not taken into consideration in these tests of physical fitness).

Crampton (30) has constructed a table to estimate physical fitness by correlating blood pressure and pulse in the standing posture and the blood pressure and pulse in the sitting posture. He states that increase in the systolic pressure when standing indicates efficiency in the circulation; and an increase in the heart beat indicates decrease in the circulation. According to his table, young men in good physical condition have indexes running from 70 to 100.

On the other hand, Barach and Marks (11) found that the maximum blood pressure was higher in the horizontal than in the erect posture, that the minimum blood pressure was lower in the horizontal than in the erect posture, that the pulse pressure was higher in the horizontal than in the erect posture, and that people with poor muscular development usually showed a reversal of this pressure curve.

In the Public Health Reports of June 8, 1923, in discussing body weight and longevity, it was stated that overweight among men after 40 years of age involves an added mortality, while underweight within limits after this age tends to longevity. It is stated that those who were between 10 and 20 per cent below the average show the optimum condition for longevity at most ages beyond early adult life.

THE SITTING POSTURE

Goldthwait (55) says that, in sitting, the body should be erect and inclined slightly backward and bending should be done from the hip with the trunk straight. He says that the body should be straight from the hips to the neck, and not be allowed to flex or bend at the waistline.

Burnham (22) says that the variety of sitting postures of school children is infinite and that it is important to have chairs so fashioned as to make the upright sitting posture comfortable.

Blake (15) says that, in sitting, we should sit on the back of the thighs and on the bones of the pelvis; that the chair should be low enough to let the feet rest easily on the ground, shallow enough so that the base of the spine should be held firmly against the back of the chair, and so constructed as to give a slightly rounded support to the small of the back.

Mock (91) says that continuous sitting is worse for women than continuous standing. Backache, strain of the back, and constipation are caused by continuous sitting.

Osgood (106) says that the sitting employment of children tends to cause distortions of the spine and chest.

Lorenz (77) says that it is possible to sit erect in good posture in a chair without a back, but the muscular effort necessary to do this can not be maintained for any length of time. Without a support for the back, we are likely to slump forward into a complete kyphosis in which posture breathing is more difficult, circulation is impaired, and the abdominal organs suffer from unnatural compression. Most of the work in the sitting posture is done leaning forward as if the chair had no back and in this posture the trunk finds support by resting the elbows on the workbench or table. A working chair should have a short back against which the worker can recline from time to time.

(Author's comment: It seems that the general opinion is that continuous sitting in any one position is tiring, that change in the sitting posture is more comfortable, and that chairs should be so designed as to support the body in any comfortable posture).

POSTURE IN INDUSTRY

Mock (91) states that the ideal work for women will enable them to sit part of the time and stand part of the time.

Aksel Mikkelsen (88) says that curves in the posture are harmful by narrowing body cavities and compressing organs. Dust can be expelled only with difficulty from the lungs in bending postures. Sinking of the shoulder and the knee are also harmful. In postures requiring bending, the bending should be from the hip with the

body straight. The back and the head should be held erect in stooping and squatting and in all working postures.

Oliver Thomas (69) says that fatigue, due to long standing, improper seats and workbenches, insufficient light, faulty habits of childhood, and constrained occupational postures are the causes of postural deformities. Slouchy attitudes are found among handworkers who bend over their work and result in contracted chests and displacement of the abdominal organs. He says a proper chair should be of such height that when sitting well back, the occupant's feet should rest flat on the floor with the legs at right angles to the thighs.

The New York Industrial Commission, in Special Bulletin 124, says that faulty postures are adopted to ease some group of tired muscles and that certain occupations accentuate postural deformities which are already present.

Special Bulletin No. 104, of the Department of Labor, State of New York, says that continuous sitting and continuous standing are both harmful. Therefore the posture of the worker should be allowed to be varied at will; and work conditions should allow of good posture by providing a physiologically good chair and by insuring a proper relationship of the different parts of the work place. Many artisans who are obliged to assume more or less constrained attitudes at work are liable to congestion of the organs and interference with normal respiration and, as a result, suffer from phthisis, dyspepsia, constipation, and hemorrhoids and have a low average of life.

The California Industrial Welfare Commission gives detailed instructions regarding seating at canneries, which provide that seats adjustable to fit the back should be provided and kept so adjusted to the worktable or machines that the position of the worker relative to the work shall be substantially the same whether standing or seated; worktables, cutting and canning tables, and sorting belts shall be of such dimensions and design that there are no physical impediments to efficient work in either sitting or standing positions; and individual foot rests must be provided.

The British Research Council (13), in Industrial Fatigue Studies, found that less energy is required to carry loads by means of a yoke and that most energy is required by carrying them on the hip and that fatigue is diminished at work if the posture is frequently changed.

Reprint No. 482 of the United States Public Health Service (August 16, 1918), says that where the workers are obliged to sit instead of stand at their work, the seats should be adjusted to the individual worker, with backs of such shape as to fit the individual's back.

The Massachusetts Institute of Technology has designed a work chair which has a shallow seat and a back so curved as to fit the small of the back.

The American Posture League gives the following requirements for the seating of factory workers:

(1) The pelvic seat bones should rest in a pocket or depression in seat floor, which will sustain the pelvis in its right relation to the spine and distribute the pressure borne by pelvis and thighs. In most chairs the seat bones of the pelvis bear the major part of the weight.

(2) The thighs should be supported at a higher level from the pelvis to within a few inches of the bend of the knee, pressure on which should be avoided.

(3) The front edge of the seat should be rounded to avoid undue pressure on the nerves and blood vessels at the bend of the knee.

(4) The back of the chair should provide space for the buttocks and their coverings, both laterally and vertically; it should sustain the spine in correct relation to the pelvis without pressure on the bony spine or pelvis; it should be properly shaped for a wide range of sizes and types of back without the need of adjustable devices.

(5) The horizontal supports of the back should avoid pressure from sharp edges and should be correctly spaced as to height in relation to the shoulder blades.

(6) The back support should be free from pronounced curves (hollows) in the region of the shoulders, as these are a mold for round shoulders.

(7) The height of the seat should sustain to the working surface such a relation that there is room for the knee under the latter, and opportunity for the play of the arms at the elbow height.

(8) The height of the seat from the floor should be such that foot rests will give variation in height and place all in a proper relation to the working surface.

SUMMARY

The consensus of opinion seems to be that—

1. The biped posture of man has been evolved from the quadruped posture.

2. The body has not yet fully adapted itself to the biped posture.

3. There are many physical disadvantages to the erect posture, but they are outweighed by the physical and mental advantages resulting therefrom.

4. Good posture can be attained by having good health, taking enough exercise to keep the muscles strong and the joints supple, and continually assuming correct postures in the daily tasks.

5. Fatigue is the most frequent cause of postural deformities in the industries.

6. Continuous sitting or standing in any posture is fatiguing.

7. Change of posture at the will of the worker is the remedy for industrial fatigue.

8. Industrial furniture should be so constructed as to fit the individual worker and to allow of comfortable working conditions both in sitting and standing postures.

THE AUTHOR'S COMMENTS

1. There is a lack of agreement in the various definitions of standards and tests for good posture.
2. Heredity, type of build, balance of muscle strength, and tone have not been given sufficient importance in establishing standards for posture.
3. It has not been established whether the faulty postures associated with certain diseases are the causes or the results of these diseases.
4. There is no universally satisfactory test for physical fitness.

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CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED MARCH 15, 1927, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT [1]

No marked change in the plague situation in the Far East or in Africa was indicated by the reports received by the health section of the League of Nations during February and published in the Epidemiological Report of March 15. Cases or deaths were reported

[1] From the Office of Statistical Investigations.

in the far eastern ports during the four weeks ended March 5 as follows: 18 deaths from plague at Rangoon, 10 deaths at Bombay; 13 cases at Colombo, 7 at Surabaya, 2 at Saigon and Cholon, and 1 case each at Bangkok and Makassar. Early spring is the season of maximum incidence of plague in most parts of the Far East. The situation appears, therefore, to be quite satisfactory.

Reports of plague in India indicate that the disease has been very much less prevalent this past winter than a year ago. The number of deaths from plague in the various Provinces during two weeks in January are shown in the table below. The number was lower in every Province than for the corresponding period of 1926, and particularly low in the Punjab and the United Provinces.

TABLE 1.—*Plague deaths in the Provinces of India*

Province	1926, Dec. 5-18	1927, Jan 9-22	1926, Jan. 10-23
North-West Frontier	0	0	0
Punjab	274	239	838
Delhi	0	0	0
United Provinces	300	532	1,272
Bihar and Orissa	77	228	284
Bengal Presidency	0	0	0
Assam	0	0	0
Central Provinces	368	247	252
Madras Presidency	113	143	176
Hyderabad States	76	57	178
Mysore	69	93	219
Bombay Presidency	96	104	513
Burma	21	120	309
Other Indian States	89	85	336
Total	1,483	1,848	4,377

The weekly number of deaths from plague in Java remained practically the same from the last of November to the beginning of January, with approximately 200 deaths reported each week.

In Egypt, Algeria, and Morocco no cases of plague were reported during February. The outbreak in the interior of Tunisia continued, and 33 cases were reported during the first 20 days of February.

The plague incidence in Madagascar continued unusually high throughout the month of February. Approximately 50 per cent of the deaths were reported in the Tananarive Province; Itasy Province was also seriously affected.

TABLE 2.—*Deaths from plague in Madagascar*

Month	1924-25	1925-26	1926-27
October	66	161	232
November	157	216	241
December	127	373	281
January	122	302	372
February	189	267	263

During the four weeks ended December 25 there were 166 deaths from plague reported in Uganda, as compared with 96 cases in the last two weeks in November. In the Union of South Africa, 13 cases were reported in the six weeks ended February 26.

In South America, cases were reported during December and January in a number of provinces of Peru, including Lima and Callao. At Guayaquil, Ecuador, 8 cases were reported in the second half of December and 5 cases in the first half of January.

Cholera.—Cholera increased in Siam during January and the first half of February; 75 deaths were reported in the two weeks ended February 12, as compared with 40 deaths in the preceding two weeks. An increase in cases at Bangkok became evident during February and continued into March, with 19 cases in the week ended March 12, as compared with 13 cases in each of the preceding two weeks. The ports of French Indo-China were free from cholera during February except for 1 case at Turane.

Cholera incidence decreased in French Indo-China during February except in Cambodia, where 127 cases were reported during the month as compared with 9 cases in January. In Tonkin, only 11 cases were reported in February as compared with 243 in the preceding month.

In India, 6,030 cases of cholera were reported in the two weeks ended January 22. The disease was less prevalent in January in Madras Presidency, but more prevalent in Bengal than in 1926. A few hundred cases were reported in Assam and Burma, while there were only a few sporadic cases elsewhere in India.

Typhus and relapsing fever.—Reports from the Union of Socialist Soviet Republics showed a considerable increase in typhus in December, but the incidence was, on the whole, not higher than during the corresponding month of the preceding two years. "The highest number of cases was reported in the governments of Viatka (234), Kursk (162), Tambov (161), and Riazon (146)," states the Report. "Five hundred and forty-nine cases were reported in December in the Ukraine as compared with 949 during the corresponding month of 1925."

Relapsing fever was less prevalent in the Union of Socialist Soviet Republics in December than during the corresponding month of any previous year. The highest number of cases was reported in December from the Government of Samara (103) and the Tartar Republic (85).

In Poland, the typhus incidence during January and February was about two-thirds as high as in the corresponding period of the preceding year. Most of the cases were reported in the eastern provinces.

In Rumania, typhus has been somewhat more prevalent so far this year than in 1926; 288 cases were reported in two weeks in February, as compared with 278 cases during the whole month of February, 1926.

Smallpox.—"The peak of the smallpox epidemic in northern England was passed in February; 1,725 cases were reported during the four weeks ended March 12, as against 2,116 cases during the preceding four weeks and 945 during the corresponding four weeks of the preceding year."

No case of smallpox has been reported in Switzerland since last November; and Poland, Czechoslovakia, Hungary, Austria, Rumania, and Bulgaria had reported no case in the current year. In the Union of Socialist Soviet Republics smallpox has become rare; only 444 cases were reported in December, most of which were in the eastern districts. The northern and northwestern districts were entirely free from smallpox.

The usual winter increase in smallpox cases was reported for the United States; 4,537 cases were reported during the four weeks ended February 5, as compared with 2,788 cases during the preceding four weeks and 3,996 during the corresponding period of 1926.

Smallpox has been very prevalent in India, as it was also a year ago; 10,032 cases and 2,471 deaths were reported during the two weeks ended January 22. Its general distribution, according to the Report, was as follows:

> The greatest prevalence was, as formerly, in Orissa, but there is now a new epidemic center in the districts of Gaya and Shahabad on the Son River south of the Ganges in Bihar. Four thousand six hundred and forty-two cases were reported in the Province of Bihar and Orissa. The disease was spreading rapidly also in the southern districts of Bengal adjoining Orissa (Midnapur and the 24 Parganas). Smallpox is also epidemic at Calcutta, where it has caused 1,140 deaths during the first 10 weeks of the current year; the outbreak was still increasing early in March, 349 deaths being reported during the two weeks ended March 12. The disease was also prevalent at Bombay, Rangoon, and Madras, but appeared to be of a mild type in the latter town, very few deaths having been reported.

Cerebrospinal meningitis.—The reported cases of cerebrospinal meningitis increased during February in Great Britain and in the Netherlands; the increase in the second four-week period of the current year over the first four-week period in England and Wales was from 40 to 65 cases; in Scotland from 9 to 21 cases; in the Netherlands from 4 to 20 cases. The incidence in most countries has been about the same as in the preceding year.

The incidence of the disease was somewhat higher in the United States during January and February than during the same months of 1926.

Lethargic encephalitis.—In England and Wales 159 cases were reported during the four weeks ended February 26, as compared with 212 cases during the corresponding period of the preceding year. In Czechoslovakia there were 13 cases in February, compared with 32 in January. Sweden reported 10 cases in February and Denmark reported 16 cases.

Scarlet fever.—Scarlet fever was prevalent in Poland, Germany, and the Netherlands last autumn. The disease reached its maximum in November, but the incidence has remained high throughout the winter.

Scarlet fever was also more prevalent in the Union of Socialist Soviet Republics than in the preceding year; 29,690 cases were reported in December, 1926, as compared with 17,753 in December, 1925.

This increase in scarlet fever was most general throughout Europe. In Great Britain and in Scandinavia the incidence has been below normal, and there has been no unusual prevalence in the Balkans.

TABLE 3.—*Cases of scarlet fever reported in Poland, Germany, and the Netherlands, 1922–1927*

Period	Poland		Germany		Netherlands	
Total 1922	14,717		32,448		3,305	
Total 1923	15,746		27,234		3,577	
Total 1924	18,030		32,798		6,635	
Total 1925	25,210		39,919		11,631	
Total 1926	37,625		55,472		14,624	
4 weeks ended—	1925	1926	1925	1926	1925	1926
Mar. 27	1,864	1,954	2,805	2,890	709	724
Apr. 24	1,485	1,598	2,529	2,926	678	640
May 22	1,629	1,589	2,540	3,172	619	707
June 19	1,670	2,010	2,488	3,147	603	774
July 17	1,769	2,278	2,715	3,180	814	857
Aug. 14	1,476	2,458	2,567	3,008	743	914
Sept. 11	1,825	4,225	3,165	4,367	976	1,031
Oct. 9	2,376	5,152	3,895	5,846	1,305	1,554
Nov. 6	2,693	4,681	3,818	6,497	1,378	1,857
Dec. 4	2,649	4,377	3,705	7,215	1,203	1,891
	1926	1927	1926	1927	1926	1927
Jan. 1	1,694	3,250	3,366	6,597	1,087	1,710
Jan. 29	2,069	2,905	3,321	6,765	1,068	1,262
Feb. 26	1,984	2,663	3,306	5,977	897	1,051

Influenza.—A résumé of the data available on the recent influenza epidemic in Europe is given in the Report; but much of this information has previously been reprinted in the PUBLIC HEALTH REPORTS. The following comment on the general course of the disease in Europe is taken from the report:

> The influenza epidemic reached its maximum in the course of February in the countries where it had not already been reached at an earlier date. As in the case of most epidemics, the disease has followed no distinct line of march

England, the south was attacked a month before the north. In Denmark, the Netherlands, and Switzerland, the movement of the epidemic was, generally speaking, from west to east. In France, the northwest was attacked later than the northeast, while in Germany the epidemic reached its maximum about the same time in Brandenburg and on the Rhine. Silesia was affected fully a month earlier than the neighboring districts of Saxony. In Sweden, the epidemic appears to have first made its appearance in the extreme north and the extreme south of the country. Western Europe, including Spain, has apparently been attacked a couple of months earlier than eastern Europe and the Balkans, but a definite and detailed statement of the progress of the epidemic can not be made until the final reports, which the health committee has asked the administrations of the various countries to prepare, have come in.

FATAL CASE OF FOOD POISONING CAUSED BY FRIED OYSTERS CONTAMINATED WITH PARATYPHOID B. BACILLUS[1]

A chief pharmacist, a chief carpenter, and a chief boatswain ate fried oysters at a Washington, D. C., restaurant and subsequently all three had symptoms of food poisoning. The chief pharmacist died.

The chief boatswain felt nauseated almost immediately after eating the oysters. He left the table, vomited, and felt weak and depressed, but recovered in seven or eight hours. The chief carpenter was taken sick about half an hour after eating the oysters, with emesis and the passage of several watery stools. Shortly after the symptoms developed, he took a large dose of magnesium sulphate. He considered that he had recovered from the poisoning in seven or eight hours. The chief pharmacist became ill about an hour after having eaten the oysters. At first he did not seem to be as sick as either of his companions, but later it was apparent that he was severely poisoned and a physician was called to attend him at his hotel. He died about 11 hours after the symptoms had developed.

The symptoms in the fatal case were those to be expected from the ingestion of toxins produced in food by bacilli of the meat poisoning group. The onset was sudden, with nausea and weakness, chilliness, and, later, great prostration. The patient was restless and had continuous pain in the muscles of his legs; also frontal headache. He had no pain in the stomach and no intestinal colic. Post-mortem examination revealed no striking pathological changes. Microscopic examination of the stomach and other organs did not show anything pertinent to the cause of death. Chemical examination of the stomach contents for possible poison was negative.

Cultures made directly from the stomach contents of the patient and from the heart blood and spleen of a white mouse which died three days after having been inoculated intraperitoneally with dilute

[1] From a report in the United States Naval Medical Bulletin, Vol. XXV, No 2, April, 1927, pp. 475-477

stomach contents, revealed a bacillus which was identified as *B. paratyphosus* B. The microorganism was proved to be extremely toxic.

An investigation of the restaurant was promptly made by the health department of the District of Columbia, but no conclusive evidence was obtainable regarding the oysters. Some of the oysters and oyster liquor which was sent by the restaurant to a bacteriological laboratory for general examination was reported to show a high *B. coli* count. No attempt was made by the bacteriologist to isolate bacilli of the paratyphoid group.

The report concludes:

> These three cases suggest that, in addition to the danger of contracting typhoid fever by eating uncooked oysters which have been taken from polluted water, there is also a definite food-poisoning hazard associated with cooked oysters contaminated by sewage-polluted water if the oysters are incubated at warm room-temperature long emough to permit multiplication of the bacilli with production of the characterictic and heat-resistant toxin in sufficient amount to cause the early onset of severe symptoms of poisoning. The heat applied in frying the oysters was not sufficient, in the fatal case at least, to destroy all the bacilli, but it hardly seems possible that quickly fatal poisoning could have resulted without the ingestion of pre-formed toxin. It is, of course, true that the oysters which caused poisoning in these cases may have been contaminated in the restaurant by a carrier in handling and preparing them. It could not be determined how long after preparation any of the oysters were held at a temperature suitable for incubation. Nevertheless, it is not necessary to assume that they were contaminated in the restaurant. The oysters were already contaminated, as indicated by the presence of members of the *B. coli* group. To kill a patron it was only necessary to provide an incubation period sufficient for the production of toxin.

OUTBREAKS OF FOOD POISONING RECENTLY REPORTED IN THE NAVY [1]

Poisoning from chicken salad.—The chicken salad served was made from cold storage chicken and eggs, apples, and mayonnaise dressing, and was prepared in cleanly manner. No unusual odor was detected during its preparation. When served, however, it was observed to have a "slightly disagreeable taste," thought at the time to be due to the cold storage eggs. Of 16 officers eating the salad, 9 developed food poisoning, the symptoms in the first case appearing three hours after the patient had eaten the salad, and in all cases within five hours. All of those poisoned had recovered within 24 hours, excepting the officer most severely poisoned. Cultures from the vomitus and stools of the latter showed the presence of *B. enteritidis*, and cultures made from a sample of the chicken salad showed the presence of that organism in large numbers.

Outbreak of fish poisoning.—The poisoning in this outbreak was determined to have resulted from the eating of fresh mackerel in

[1] From reports published in the United States Naval Medical Bulletin, Vol. XXV, No. 2, April, 1927

which bacterial poison had developed as the result of improper storage of the uncooked fish, due to the carelessness of a mess boy. The fish had been bought and some of it had been served the day before, when it was considered perfectly fresh and enjoyed by those eating it. The causative organism was not determined. Thirteen of 17 boys who ate the fish developed poisoning symptoms, the severity of which appeared to be in direct proportion to the amount of fish consumed.

Food poisoning from eating boiled smoked tongue.—Of 21 men eating sandwiches made of smoked tongue, 14 were poisoned. The tongue had passed all the usual careful inspections made by the Navy officers. Tongue from the same lot had been served about once a week for five weeks with no ill effects on those eating it, and all that remained on board after the poisoning was found to be of good appearance and odor. A sample of that used for the sandwiches, however, yielded in culture a microorganism belonging to the enteritidis-paratyphoid group. It was concluded that the meat which caused the poisoning was contaminated with *B. enteritidis* bacillus after it had been boiled and that bacterial growth in the chill room had probably continued long enough for the production of sufficient toxin to cause poisoning symptoms.

Food poisoning caused by cheese.—An extensive outbreak of food poisoning suspected to have resulted from the eating of cheese occurred on board the U. S. S. *Reuben James* on October 15, 1926. All messes were affected, excepting one mess in which the cheese was not served. Of 105 members of the crew, 40 had poisoning symptoms. The first man to be affected was taken ill about three hours after the meal, or about 9 p. m., and by midnight 37 other men had appeared for treatment. Two became ill after midnight. All had completely recovered by noon the following day. The report states that "the crew was incapacitated to such an extent that a bonus run had to be abandoned and medical assistance summoned. The possible effect of an extensive outbreak of poisoning in time of war is suggested."

Bacteriological proof of the cause of the outbreak was not obtained. Examination of the cheese for bacilli of the enteritidis-paratyphoid group gave negative results. All other evidence pointed definitely to the cheese, and Commander Phelps, of the Medical Corps of the Navy, calls attention to the possibility that microorganisms other than those of the enteritidis-paratyphoid group might render food toxic and cites the two outbreaks of food poisoning caused by a streptococcus in cheese reported by Linden, Turner, and Thom.[1]

Poisoning caused by corned-beef hash.—Of 155 men eating the breakfast at which the corned-beef hash was served, 58 developed poisoning

[1] Public Health Reports, Vol. 41, No. 32, August 6, 1926, pp. 1647–1652.

symptoms, 17 within three hours, 20 between three and four hours, 20 between four and five hours, and 1 in the fifth hour. No sample of the suspected food was obtainable for examination. It was concluded, however, that the outbreak resulted from the eating of the corned-beef hash, the meat ingredient of which had been prepared the day before it was to be eaten, contrary to published instructions and established orders, and that the meat had been contaminated by a human carrier or by vermin and then subjected to incubation conditions favorable for the production of a sufficient quantity of toxic material to cause the symptoms of mild food poisoning.

This outbreak and the other similar outbreak mentioned above indicate that it is not safe to return to a cold-storage room for future consumption meat that has possibly been contaminated.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Report and Conclusions of the Second Subcommittee on Cholera Epidemiology. Anon. *Bulletin Mensuel*, Office International D'Hygiène Publique, Paris, vol. 18, No. 8, August, 1926, pp. 878–881. (Abstract by W. H. W. Komp.)

The article states that our knowledge of cholera has not been appreciably increased since the formulation of the conclusions of the subcommittee on cholera of the 1912 International Sanitary Conference. The conclusions of the 1926 subcommittee may be summarized as follows: (1) The period of incubation of cholera is short, usually not exceeding five days; (2) the virus of cholera is contained in human excreta. Man is the principal agent in its diffusion; (3) great movements of men (such as pilgrimages, fairs, and migrations) are of the greatest moment in the spread of cholera. Anticholera vaccination is considered to-day the most efficacious method of preventing the spread of the disease; (4) the definition of confirmed cholera should rest on clinical and pathological symptoms, supported by bacteriological confirmation. Suspected cholera is said to occur when the vibrios are not found in the excreta. Suspects may be released when two negative examinations, at an interval of 24 hours, have been made. Germ carriers are convalescents or those having no symptoms of the disease who, nevertheless, continuously or intermittently pass the cholera vibrios in their evacuations; (5) there is no doubt that healthy carriers play an important part in the production of local epidemics, and that they are in a condition to transport the germs to great distances. In the present state of our knowledge it is difficult to state precisely their part in the dissemination of cholera to distant parts. On the contrary, certain considerations, such as the usually very short time the germs are present in the excreta, and the small numbers of them, and the fact that they are contained in solid matter, cause it to be thought that the influence of healthy carriers in lighting up cholera foci is confined to a limited radius; (6) no certain observations are on record of the carriage of cholera to any distance in merchandise, including foodstuffs, but all objects soiled with cholera excretions are infectious as long as the germs are living. Therefore, body linen, bedding, clothes, and objects of personal use should be suspected; (7) drinking water aboard ship should be the object of special precautions, especially when taken aboard in cholera-infected ports; (8) water ballast may be suspected of propagating cholera; (9) anticholera vaccination, which protects for a period of six months, is the present method of choice in fighting epidemics.

Its use in a systematic way permits the arrest of a beginning epidemic or the extinguishing of an epidemic focus at its onset.

Water Consumption for Various Purposes in Terms of Depth and Area. Charles H. Lee, Consulting Hydraulic Engineer, San Francisco, Calif., *Journal American Water Works Association*, vol. 17, No. 2, February, 1927, pp. 193–214. (Abstract by J. K. Hoskins.)

Rapid increases in industrial development and in irrigation practice make difficult the estimation of water consumption on a per capita basis, since the amount of water used has no direct relation to population. A definite need exists "for some simple basis of estimating, other than population, which can be applied to all varieties of use and yet be related to some common factor." The author proposes "to use area as the common factor instead of population, with equivalent depth of water delivered to the area as the measure of the requirement." The relationships between per capita consumption, depth, and population density are given in a formula.

Depths of water in feet per acre of area consumed annually by various American cities are given in the form of tables. In a group of 95 cities with a total population of 17,800,000 and in which 80 per cent or more of the services are metered, the depth of water consumed per annum ranges from 0.1 to 10.12 feet. For eight cities having less than 25 per cent metered services, the depth ranges from 1.22 to 7.25 feet. From an analytical study of the data presented the author concludes that the depth of water consumed in general municipal service varies directly as the density of population. In domestic service alone the depth seldom exceeds 2.1 feet; for human needs less than 1 foot is used; irrigation varies from 1.25 to 4.58 feet; while for commercial areas the maximum may be 24 feet per annum.

Water Supply and Chlorination. Anon. *The Lancet*, vol. 210, No. 5340 January 2, 1926, pp. 29–30. (Abstract by A. S. Bedell.)

This is a brief report on two papers given before the Public Works, Roads, and Transport Congress. Mr. I. G. Gibbon of the Ministry of Health urged that, in areas where communities have a common interest in water supply, regional committees be appointed to consider the needs of all, leaving, however, the actual decision to the constituent authorities. Sir Alexander Houston regretted the tendency of large towns to appropriate for distant sources irrespective of the needs of others. In the past the wise attempts to secure the purer upland waters have been successful, but in the future the great demands for water will necessitate the utilization of waters of doubtful origin. This will be done with increasing assurance for the interpretation of the results of the examination of waters has radically changed, artificial purification of impure waters has greatly progressed, and sentiment and tradition are no longer obsessions. Storage and filtration will practically eliminate *B. coli*, while chlorinated superadded will absolutely destroy them. "Over one-seventh of the population of England have been, and are, drinking with impunity highly purified water derived from sources of questionable origin. This may be described as a physiological, or pathological, experiment on a vast scale." Attention is called to a booklet on "Water Sterilization by Gaseous Chlorine."

The Orthotolidine Reagent for Free Chlorine in Water. Emery J. Theriault, chemist, U. S. P. H. S., *Public Health Reports*, vol. 42, No. 10, March 11, 1927, pp. 668–672. (Abstract by E. H. Gage.)

A review of the results of experimental work on the preparation of the orthotolidine reagent for free chlorine in water and on the effect of iron or manganese compounds on the orthotolidine test. A method for preparing the reagent is given which utilizes the relative solubilities of the compounds formed:

(1) Weigh out 1 gram of orthotolidine, transfer to a 6-inch mortar, and add 5 cubic centimeters of 1.5 hydrochloric acid (previously prepared by adding 100

cubic centimeters of concentrated hydrochloric acid, specific gravity 1.18–1.19, to 400 cubic centimeters of distilled water); (2) grind to a thin paste and add 150 to 200 cubic centimeters of distilled water. The orthotolidine goes into solution immediately; (3) transfer to a 1,000 cubic centimeters graduate and make up to 505 cubic centimeters with distilled water; (4) make up to the 1,000 cubic centimeter mark by adding the balance (495 c. c.) of the 1.5 hydrochloric acid.

It is stated that "The desired yellowish colorations will be obtained when 1 cubic centimeter of the usual reagent is added to 100 cubic centimeters of a chlorine-containing sample, provided (*a*) that its volumetric alkalinity does not exceed, say, 400 or 500 parts per million, and (*b*) that its chlorine content is less than 4 or 5 parts per million." References are appended.

How to Treat Water with Iodine. Dr. W. T. Schrenk, E. C. Hunze, and W. Scott Johnson. *Water Works Engineering*, vol. 80, No. 6, March 16, 1927, pp. 341–342. (Abstract by William L. Havens.)

The use of iodine as a prophylactic for goiter has received considerable attention during the past few years, and the methods of treatment include its administration as a medicine, the use of iodized foods, and the iodizing of water supplies. McClendon, in his research work on natural waters, found that districts having a water low in iodine indicate a high goitrous region. In many instances iodized tablets and candies have been made available for school children, and the use of iodized salt has been recommended for several years. Rochester, N. Y., reports satisfactory results in the iodization of its city water supply, and other cities have recently adopted this treatment. The cost has been estimated variously ranging from 1½ cents to 5 cents per individual per year. Current practice in treating water supplies is the use of 0.664 pound of sodium iodide per million gallons of water, this amount being administered daily in three-week periods twice a year. As the result of a survey of water supplies in Missouri by the School of Mines and Metallurgy, it was concluded that cistern, or rain, water is entirely deficient in iodine, water from shallow wells and springs is usually deficient, and water from rivers and deep wells may or may not contain normal quantities of iodine. In the latter case, treatment should be applied only after proper examination.

Definitions of Pasteurization and Their Enforcement.[1] Leslie C. Frank, sanitary engineer; Frederic J. Moss, assistant sanitary engineer; and Peter LeFevre, associate milk specialist, United States Public Health Service, Montgomery, Ala. *American Journal of Public Health*, vol. 17, No. 2, February, 1927, pp. 131–139. (Abstract by R. E. Irwin.)

The object of this paper is to discuss (1) certain unsatisfactory aspects of the present status of milk Pasteurization and (2) a suggested remedy.

The problem.—(1) That present day definitions of Pasteurization which refer by intent to recording thermometer limits, and which do not specify approved apparatus, can not be depended upon to provide uniformly effective Pasteurization, whereas those which do specify approved apparatus can not be entirely fairly enforced because of the lack of an adequate basis for approval; (2) that present day definitions of Pasterurization which do not refer by intent to recording thermometer limits, but which require "every particle of milk" to be exposed to the definition limits, obviously imply a knowledge on the part of the local health officer as to the design and operation conditions which must be satisfied before any type of apparatus will carry out the definition. This information is not at present completely available to health officers; (3) that some present day definitions of Pasteurization would, if strictly enforced, partly or completely

[1] This paper, revised and expanded, was published in Public Health Reports, vol. 42, No. 17, Apr. 29, 1927, pp. 1152–1162.

destroy the creaming ability of milk and, consequently, interfere with Pasteurized milk sales.

A suggested remedy.—This statement of the problem points the way fairly obviously to at least part of the remedy. Certainly it is desirable that some competent and responsible agency should furnish us as early as possible with the results of exhaustive tests on various makes of apparatus. These tests should determine for each type of apparatus: (1) What design corrections should be made, if any, before its use should be authorized at all; (2) what margin of safety must be applied in its operation before it can be expected to apply any given Pasteurization limits to every particle of milk passing through it; and (3) how it must be operated in order that the recommended margin of safety may be adequate.

The agency doing the testing could well be advised and supported by a committee of experts representing health officers, the apparatus industry, the dairy industry, and the Federal health and dairy agencies. Once such information is available for all makes of apparatus and continuously augmented for newly appearing types of apparatus, the solution of our problem will have become relatively simple provided only that some point or points upon the minimum lethal curve can be generally agreed upon. This latter must, of course, be the business of bacteriologists.

Studies of Pasteurization machinery.—Neither 142° F. nor 145° F., as indicated by the indicating or recording thermometers for the main body of the milk, will offset a temperature drop frequently as high as 6° or 7° and occasionally as high as 50° F. in the milk in "cold pockets" which are beyond the influence of the heating and agitation devices.

Correction of foam and milk mixture.—It is, of course, obvious that the mixture of foam and milk which leaves the vat at the end of the Pasteurization process is not safely Pasteurized. Any infection present in the foam before Pasteurization may be present in the foam after Pasteurization and will partly destroy the value of the Pasteurization process. The remedy is, of course, either to eliminate the foam entirely or to keep the foam at the Pasteurization temperature.

Leaky valves.—Another defect which can not be offset by either 142° F. or 145° F. is that of leaky valves.

Another design defect which must be corrected is that effluent valves become contaminated with leakage during the filling, heating, and holding period. This contamination is not avoided, of course, by the leak escape feature above described. For this reason either a manual or automatic steaming of effluent valves is recommended just prior to the discharge of Pasteurized milk from any holder.

Effect of unequal temperatures.—A defect found in long distance flow holders is the existence of unequal temperatures in the air surrounding the holder tubes. The variation found has been as much as 19° F. This should be corrected by requiring thermostatically controlled heating of the air in the holder. Agitation of the air in the holder may further prove necessary in order to insure sufficiently even distribution of temperature.

The above is merely a tentative list of defects thus far studied and will probably have to be augmented as the studies proceed.

A tentative draft of specifications of Pasteurization apparatus which are suggested for use pending further development in Pasteurization apparatus is given.

Chicago's Program for Correction of Pasteurization Defects. George W. Putnam, chief, Bureau of Dairy Products, Chicago Health Department. *American Journal of Public Health*, vol. 17, No. 2, February, 1927, pp. 121–130. (Abstract by R. E. Irwin.)

Herman N. Bundesen, Commissioner of Health of Chicago, organized in March, 1926, a sanitary engineering program for the determination and elimination of defects in existing Pasteurization equipment and in the methods of

operating this equipment in plants selling milk or dairy products in the city of Chicago.

Coincident with this, the United States Public Health Service established its Pasteurization equipment testing station in Chicago. Practically every type of Pasteurizing equipment has been made available here for tests to determine the thermal treatment milk receives under actual plant operating conditions. Under the city's intensive program of Pasteurization supervision, defects found have been rapidly corrected, giving improved equipment for final testing and approval.

A study of the mechanical and sanitary features of the various types of Pasteurization plant equipment has been made by the department of health and considerable experimental work has been carried on to verify the conclusions reached. Conferences with representatives of equipment and instrument manufacturers were held, the defects were pointed out, and, with their cooperation, means for their correction were worked out. The following is an outline of each defect and the method evolved for correcting it:

Dead ends in Pasteurizer holder outlets.—Dead ends in which the milk is not subjected to sufficient agitation or heating to keep the temperature up to that required prevent proper Pasteurization of that portion of the milk held in them.

Leakage through valves.—Numerous instances of milk valves on holders which leaked continuously were discovered and a large percentage were found to leak at intervals.

Foam and splash.—Approximately 30 per cent of the positive holders in the larger plants in Chicago had foam in amounts ranging from one-half to 12 inches deep. Upon emptying the milk from a positive holder vat or pocket, air at room temperature is drawn in. This air cools off the foam which rises to the top of the milk as the holder is filled. Consequently, the foam, when cooled in this manner, is not properly Pasteurized and contaminates the main volume of the Pasteurized milk when the holder is emptied.

Defective continuous-flow units.—Continuous-flow holders which do not subject every drop of milk to the Pasteurizing temperature for the full 30-minute holding period are not permitted in Chicago. The long-distance tubular type is the only continuous-flow holder which has been found to satisfy this requirement in commercial operation.

A frequent defect in operation on this holder is that the operator will fail to heat the holder to the Pasteurizing temperature before starting the milk flow. The milk entering from the heater at the Pasteurizing temperature will then be cooled down by the mass of colder metal in the milk pipes. The result has frequently been that the first milk would come from the holder outlet at around 125° F. and 5 to 10 minutes would elapse before the temperature of the milk coming from the holder reached the Pasteurizing temperature.

Recording thermometers are required on both the inlet and outlet of the holder to furnish a record of milk temperatures for the department of health.

Positive Pasteurization with this type of continuous-flow holder is mainly dependent on the rate of pumping and the satisfactory operation of the steam controller. The use of steam pumps permits an operator to speed up the rate of pumping, which cuts down the holding period below the required 30 minutes. Chicago requires a constant speed motor geared directly to the milk pump for holders of this type, timed to give at least a 30-minute holding period for every drop of milk.

Human element.—Full appreciation should be given to the fact that after correcting the mechanical defects in Pasteurizing equipment, we still have the human element with which to contend. Ignorance of proper methods of operation is a particularly troublesome factor in some of the small plants and even in the large plants when untrained men relieve the regular employees. The remedy in Chicago has been the thorough schooling of competent inspectors who, in turn

instruct and check the plant operators. In Chicago, 9 city milk inspectors each supervise an average of 25 Pasteurizing plants, visiting each plant about once in 10 days.

The department of health is perfecting further plans for instruction in Pasteurizing methods by means of a school for plant operators to be held this coming winter. The desirability of eventually licensing milk-plant operators, requiring them to have a thorough knowledge of the various phases of clean, safe, high-quality milk production is also being considered.

Summary.—In conclusion, known defects preventing proper Pasteurization of milk in commercial plants have been corrected or safeguarded, as follows: (1) Dead ends at Pasteurizer holder outlets were corrected by flush-type outlet valves; (2) leakage through valves was corrected by requiring the abandonment of the old type multiple-way valve, the disconnecting of holder inlet and outlet pipes immediately after each use, or the installation of properly designed leak-protector valves; (3) foam was eliminated or materially reduced by removing or properly adjusting the unit causing it—usually the clarifier centrifugal type heater, or pump, and by providing a special inlet pipe to accomplish the smooth non-turbulent discharge of the milk into the holder. Splash was eliminated by reducing the speed of the coil in vats; (4) continuous-flow holders not providing proper temperature or holding period have been eliminated; accepting the long-distance flow-type holder when properly heated before starting; and requiring careful attention and servicing of all continuous-flow units; (5) the troublesome human element was minimized by schooling competent plant inspectors who instruct the operators and make frequent inspections. A school for Pasteurization plant operators is being organized.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for August, 1926

Reports for the month of August, 1926, were received from 30 institutions for the care of the feeble-minded.

Movement of patient population in 30 institutions for the feeble-minded, August, 1926

	Male	Female	Total
Number of public institutions included			29
Number of private institutions included			1
Total			30
Patients on books Aug. 1, 1926:			
In institutions	13,014	12,233	25,247
On temporary leave	2,367	1,832	4,199
Total	15,381	14,065	29,446
Admitted during August:			
First admissions	142	203	345
Readmissions	10	4	14
Admitted by transfer	80	19	99
Total received during August	232	226	458
Total on books during month	15,613	14,291	29,904
Discharged or placed on indefinite parole during August	64	58	122
Transferred from institutions	80	19	99
Died during month	23	33	56
Total discharged, transferred and died during August	167	110	277
Patients on books Aug. 31, 1926:			
In institutions	13,146	12,456	25,602
On temporary leave	2,300	1,725	4,025
Total	15,446	14,181	29,627

Analysis of movement of patient population of 30 institutions for the feeble-minded, August, 1926

	Male	Female	Total
Per cent increase in number of patients during August:			
Total (increase)	0.42	0.82	0.61
In institutions (increase)	1.01	1.82	1.41
On temporary leave (decrease)	2.83	5.84	4.14
Per cent of total patients absent on temporary leave:			
August 1	15.39	13.03	14.26
August 31	14.89	12.16	13.59
Per cent of total admissions (excluding transfers) which were—			
First admissions	93.42	98.07	96.10
Readmissions	6.58	1.93	3.90
Per cent of total patients discharged during August (based on average number for month)	0.42	0.41	0.41
Males per 1,000 females, Aug. 31			1080.
Deaths per 1,000 patients under treatment (annual basis)	17.34	27.19	22.05

Reports for May, June, and July, 1926, showed reductions in the aggregate number of patients in the institutions, and a steady increase in the number on temporary leave. The reports for August showed an increase during that month of 355 in the institutions, and a decrease in the number on leave of 174. The reports from only 10 institutions showed increases in the number of patients on temporary leave. Thirteen institutions reported decreases in the number on leave, aggregating 215 patients. Six of the institutions did not report any patients on temporary leave.

DEATHS DURING WEEK ENDED APRIL 23, 1927

Summary of information received by telegraph from industrial insurance companies for week ended April 23, 1927, and corresponding week of 1926. (From the Weekly Health Index, April 28, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 23, 1927	Corresponding week, 1926
Policies in force	67,421,189	64,125,650
Number of death claims	13,589	14,073
Death claims per 1,000 policies in force, annual rate	10.5	11.4

Deaths from all causes in certain large cities of the United States during the week ended April 23, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 28, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 23, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 23, 1927 [2]
	Total deaths	Death rate [1]		Week ended Apr. 23, 1927	Corresponding week, 1926	
Total (68 cities)	7,986	14.0	[3] 15.1	822	[3] 1,005	[4] 68
Albany [5]	43	18.7	18.4	3	1	63
Atlanta	60			7	12	
White	33			4	6	
Colored	27	(6)		3	6	
Baltimore [5]	260	16.6	16.9	24	28	74
White	189		14.7	16	21	62
Colored	71	(6)	29.8	8	7	124
Birmingham	69	16.7	18.5	11	8	
White	33		11.4	5	3	
Colored	36	(6)	29.5	6	5	
Boston	251	16.5	18.2	31	34	87
Bridgeport	39			3	9	56
Buffalo	150	14.2	16.7	10	23	42
Cambridge	34	14.3	15.0	3	6	53
Camden	50	19.6	19.9	7	6	120
Canton	24	11.1	19.4	2	10	47
Chicago [5]	733	12.3	12.2	87	91	75
Cincinnati	153	19.4	20.9	19	17	118
Cleveland	206	10.9	13.3	23	32	61
Columbus	103	18.5	14.3	15	4	140
Dallas	35	8.7	14.4	2	5	
White	26		13.9	2	3	
Colored	9	(6)	17.4	0	2	
Dayton	56	16.2	10.6	5	6	82
Denver	83	14.9	12.6	8	6	
Des Moines	38	13.3	14.6	3	4	50
Detroit	347	13.6	16.6	52	70	82
Duluth	23	10.4	9.7	1	4	22
El Paso	39	17.8	20.6	7	7	
Erie	28			2	5	39
Fall River [5]	28	11.0	28.3	3	14	53
Flint	24	8.8	11.1	0	5	98
Fort Worth	45	14.3	3.9	7	2	
White	37		3.4	7	2	
Colored	8	(6)	8.2	0	0	
Grand Rapids	37	12.1	16.7	3	5	44
Houston	67			7	10	
White	48			6	7	
Colored	19	(6)		1	3	
Indianapolis	95	13.2	17.0	5	14	39
White	79		15.8	3	9	27
Colored	16	(6)	26.1	2	5	122
Jersey City	84	13.6	13.4	9	13	67
Kansas City, Kans	28	12.5	18.7	5	6	97
White	19		17.8	3	5	67
Colored	9	(6)	22.9	2	1	304
Kansas City, Mo	88	12.0	16.4	5	12	
Knoxville	20	10.2		1		
White	18			1		
Colored	2	(6)		0		
Los Angeles	291			27	23	77
Louisville	74	12.1	17.4	2	7	17
White	55		16.0	2	4	19
Colored	19	(6)	25.5	0	3	0
Lowell	28	13.2	18.0	3	8	58
Lynn	32	15.9	9.5	3	2	79
Memphis	64	18.6	23.9	10	8	
White	27		17.8	3	4	
Colored	37	(6)	34.8	7	4	
Milwaukee	120	11.9	14.4	20	22	93
Minneapolis	110	13.0	16.5	12	15	68

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 62 cities.
[5] Deaths for week ended Friday, Apr. 22, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 23, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, April 28, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Apr. 23, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 23, 1927
	Total deaths	Death rate		Week ended Apr. 23, 1927	Corresponding week, 1926	
Nashville [5]	46	17.4	16.4	4	7	----------
White	29	----------	13.8	3	4	----------
Colored	17	(6)	22.7	1	3	----------
New Bedford	27	11.8	17.0	4	3	69
New Haven	42	11.8	11.7	2	2	28
New Orleans	123	15.1	16.7	11	9	----------
White	63	----------	12.3	6	3	----------
Colored	60	(6)	29.2	5	6	----------
New York	1,584	13.8	15.2	159	228	66
Bronx Borough	201	11.3	11.5	20	19	64
Brooklyn Borough	513	11.9	14.1	50	102	52
Manhattan Borough	688	19.8	19.0	69	70	81
Queens Borough	145	9.3	12.3	17	30	73
Richmond Borough	32	11.4	22.6	3	7	56
Newark, N. J.	108	12.1	14.4	11	22	54
Norfolk	40	11.7	11.7	7	1	141
White	13	----------	8.9	1	1	33
Colored	27	(6)	16.6	6	0	318
Oakland	67	13.1	7.6	8	2	94
Oklahoma City	35	----------	----------	3	1	----------
Omaha	49	11.7	17.9	5	2	56
Paterson	48	17.4	16.0	3	7	53
Philadelphia	627	16.1	14.7	53	64	71
Pittsburgh	184	14.9	16.6	15	30	52
Portland, Oreg.	74	----------	----------	5	5	53
Providence	76	14.1	17.1	4	6	34
Richmond	64	17.4	18.2	7	3	92
White	44	----------	16.3	2	2	40
Colored	20	(6)	22.8	5	1	190
Rochester	95	15.3	15.8	8	11	67
St. Louis	216	13.4	16.2	26	21	----------
St. Paul	64	13.3	15.6	5	2	45
Salt Lake City [5]	39	15.0	10.2	2	3	30
San Antonio	80	19.8	13.5	11	9	----------
San Diego	45	20.4	12.8	2	3	43
San Francisco	170	15.4	14.1	10	10	62
Schenectady	16	9.0	15.7	3	3	90
Seattle	68	----------	----------	3	4	31
Somerville	18	9.2	15.6	1	0	36
Spokane	26	12.4	10.0	4	2	100
Springfield, Mass.	43	15.3	13.7	4	2	62
Syracuse	63	16.7	13.8	7	3	90
Tacoma	27	13.2	10.8	2	0	47
Toledo	78	13.4	17.3	8	6	77
Trenton	49	18.6	18.7	4	9	70
Washington, D. C.	141	13.6	12.4	10	11	58
White	95	----------	10.1	7	4	59
Colored	46	(6)	19.5	3	7	55
Waterbury	24	----------	----------	2	5	47
Wilmington, Del.	45	13.6	17.7	4	7	99
Worcester	45	12.0	17.6	3	6	36
Yonkers	21	9.2	10.8	3	8	68
Youngstown	46	14.2	13.9	5	8	70

[5] Deaths for week ended Friday, Apr. 22, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended April 30, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	18
Diphtheria	23
Influenza	87
Malaria	52
Measles	317
Mumps	16
Ophthalmia neonatorum	1
Pellagra	16
Pneumonia	49
Scarlet fever	9
Smallpox	34
Tetanus	1
Tuberculosis	44
Typhoid fever	12
Whooping cough	70

ARIZONA

	Cases
Chicken pox	2
Diphtheria	7
German measles	1
Measles	27
Scarlet fever	4
Tuberculosis	3
Typhoid fever	2

ARKANSAS

	Cases
Chicken pox	31
Diphtheria	7
Hookworm disease	1
Influenza	59
Malaria	30
Measles	195
Mumps	38
Ophthalmia neonatorum	2
Pellagra	7
Scarlet fever	3

ARKANSAS—continued

	Cases
Smallpox	8
Trachoma	2
Tuberculosis	10
Typhoid fever	16
Whooping cough	60

CALIFORNIA

	Cases
Cerebrospinal meningitis:	
Los Angeles	2
Sacramento	2
San Francisco	2
Santa Barbara	1
Chicken pox	487
Diphtheria	118
Influenza	23
Lethargic encephalitis	2
Measles	2,378
Mumps	273
Scarlet fever	186
Smallpox	34
Tuberculosis	177
Typhoid fever	9
Whooping cough	207

COLORADO

	Cases
Cerebrospinal meningitis	1
Chicken pox	26
Diphtheria	23
German measles	11
Measles	118
Mumps	4
Pneumonia	2
Scarlet fever	145
Smallpox	4
Tuberculosis	4
Typhoid fever	2
Whooping cough	25

CONNECTICUT

	Cases
Chicken pox	78
Diphtheria	26
German measles	17
Influenza	3
Malaria	1
Measles	50
Mumps	53
Ophthalmia neonatorum	1
Paratyphoid fever	1
Pneumonia (broncho)	26
Pneumonia (lobar)	44
Poliomyelitis	1
Scarlet fever	99
Septic sore throat	6
Tetanus	1
Tuberculosis (all forms)	46
Typhoid fever	1
Whooping cough	31

DELAWARE

	Cases
Chicken pox	6
Diphtheria	2
Measles	8
Mumps	3
Paratyphoid fever	1
Pneumonia	2
Scarlet fever	19
Tuberculosis	4

FLORIDA

	Cases
Cerebrospinal meningitis	1
Chicken pox	79
Diphtheria	14
Influenza	7
Malaria	14
Mumps	22
Pneumonia	133
Poliomyelitis	3
Scarlet fever	7
Smallpox	32
Typhoid fever	25
Whooping cough	52

GEORGIA

	Cases
Cerebrospinal meningitis	1
Chicken pox	49
Diphtheria	8
Dysentery	20
Hookworm disease	2
Influenza	140
Malaria	41
Measles	106
Mumps	25
Pellagra	17
Pneumonia	36
Scarlet fever	13
Septic sore throat	9
Smallpox	24
Tuberculosis	19
Typhoid fever	8
Whooping cough	51

IDAHO

	Cases
Cerebrospinal meningitis:	
Idaho Falls	1
Potlatch	1
Chicken pox	2
Diphtheria	1
Lethargic encephalitis	1
Measles	48
Mumps	3
Rocky Mountain spotted fever	1
Scarlet fever	11
Smallpox	15
Tuberculosis	1
Whooping cough	1

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Cook County	10
Fulton County	1
Lake County	1
Chicken pox	230
Diphtheria	99
Influenza	58
Lethargic encephalitis	6
Measles	1,459
Mumps	500
Pneumonia	352
Poliomyelitis:	
Cook County	2
Macoupin County	1
Scarlet fever	255
Smallpox	18
Tuberculosis	414
Typhoid fever	8
Whooping cough	199

INDIANA

	Cases
Chicken pox	109
Diphtheria	34
Influenza	33
Measles	281
Mumps	1
Pneumonia	7
Scarlet fever	196
Smallpox	166
Tuberculosis	37
Typhoid fever	1
Whooping cough	52

KANSAS

	Cases
Cerebrospinal meningitis:	
Blakeman	1
Topeka	1
Chicken pox	86
Diphtheria	9
German measles	17
Influenza	12
Measles	1,027
Mumps	46
Pneumonia	61
Scarlet fever	83
Smallpox	5
Tuberculosis	34
Vincent's angina	2
Whooping cough	56

LOUISIANA

	Cases
Diphtheria	26
Influenza	27
Measles	80
Pneumonia	36
Poliomyelitis	2
Scarlet fever	7
Smallpox	12
Tuberculosis	34
Typhoid fever	17

MAINE

Chicken pox	36
Diphtheria	2
German measles	52
Influenza	7
Measles	86
Mumps	17
Pneumonia	20
Scarlet fever	29
Tuberculosis	16
Typhoid fever	4
Vincent's angina	1
Whooping cough	24

MARYLAND [1]

Chicken pox	114
Diphtheria	29
Dysentery	1
German mesales	5
Influenza	34
Malaria	1
Measles	23
Mumps	46
Paratyphoid fever	1
Pneumonia (broncho)	44
Pneumonia (lobar)	58
Scarlet fever	67
Septic sore throat	1
Tetanus	1
Tuberculosis	86
Typhoid fever	11
Vincent's angina	1
Whooping cough	70

MASSACHUSETTS

Cerebrospinal meningitis	2
Chicken pox	253
Conjunctivitis (suppurative)	8
Diphtheria	75
German measles	25
Influenza	14
Lethargic encephalitis	3
Measles	408
Mumps	480
Ophthalmia neonatorum	26
Pneumonia (lobar)	122
Poliomyelitis	2
Scarlet fever	435
Septic sore throat	4
Trachoma	2
Tuberculosis (pulmonary)	120
Tuberculosis (other forms)	22
Typhoid fever	5
Whooping cough	135

[1] Week ended Friday.

MICHIGAN

	Cases
Diphtheria	81
Measles	211
Pneumonia	190
Scarlet fever	253
Smallpox	34
Tuberculosis	130
Typhoid fever	11
Whooping cough	138

MINNESOTA

Cerebrospinal meningitis	7
Chicken pox	162
Diphtheria	13
Dysentery	1
Influenza	5
Lethargic encephalitis	1
Measles	140
Pneumonia	4
Scarlet fever	176
Smallpox	8
Tuberculosis	46
Typhoid fever	2
Whooping cough	17

MISSISSIPPI

Diphtheria	5
Scarlet fever	10
Smallpox	4
Typhoid fever	2

MISSOURI

Cerebrospinal meningitis	3
Chicken pox	56
Diphtheria	51
Influenza	1
Measles	205
Mumps	110
Pneumonia	1
Scarlet fever	95
Smallpox	18
Tuberculosis	51
Typhoid fever	3
Whooping cough	76

MONTANA

Cerebrospinal meningitis	2
Chicken pox	9
Diphtheria	1
German measles	1
Measles	40
Rocky Mountain spotted fever	5
Scarlet fever	61
Smallpox	8
Tuberculosis	1
Typhoid fever	3
Whooping cough	2

NEBRASKA

Chicken pox	46
Diphtheria	9
German measles	33
Influenza	8
Measles	406
Mumps	62

NEBRASKA—continued

	Cases
Pneumonia	3
Scarlet fever	60
Septic sore throat	2
Smallpox	31
Tuberculosis	3
Typhoid fever	1
Whooping cough	9

NEW JERSEY

Cerebrospinal meningitis	2
Chicken pox	274
Diphtheria	110
Dysentery	1
Influenza	22
Measles	76
Pneumonia	159
Scarlet fever	277
Trachoma	1
Typhoid fever	6
Whooping cough	181

NEW MEXICO

Diphtheria	2
Influenza	1
Measles	117
Scarlet fever	11

NEW YORK

(Exclusive of New York City)

Cerebrospinal meningitis	1
Chicken pox	354
Diphtheria	75
German measles	317
Measles	810
Mumps	468
Ophthalmia neonatorum	3
Paratyphoid fever	1
Pneumonia	339
Scarlet fever	306
Septic sore throat	10
Smallpox	3
Tetanus	1
Typhoid fever	13
Vincent's angina	24
Whooping cough	154

NORTH CAROLINA

Chicken pox	117
Diphtheria	11
German measles	14
Measles	1, 681
Scarlet fever	19
Septic sore throat	2
Smallpox	47
Typhoid fever	5
Whooping cough	742

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Chicken pox	27
Diphtheria	11
Influenza	60
Malaria	18
Measles	394

[1] Deaths.

OKLAHOMA—continued

	Cases
Mumps	33
Pellagra	10
Pneumonia	32
Poliomyelitis—Texas County	1
Scarlet fever	51
Smallpox	4
Typhoid fever	11
Whooping cough	14

OREGON

Chicken pox	22
Diphtheria	13
Influenza	35
Measles	370
Mumps	8
Pneumonia	[1] 4
Poliomyelitis	1
Scarlet fever	32
Septic sore throat	2
Smallpox	19
Trachoma	1
Tuberculosis	[1] 4
Typhoid fever	2
Whooping cough	12

PENNSYLVANIA

Cerebrospinal meningitis—Williamsport	1
Chicken pox	423
Diphtheria	172
German measles	122
Impetigo contagiosa	4
Lethargic encephalitis	1
Measles	744
Mumps	507
Ophthalmia neonatorum	2
Pneumonia	174
Poliomyelitis	1
Scabies	6
Scarlet fever	466
Tetanus	1
Tuberculosis	35
Typhoid fever	42
Whooping cough	182

RHODE ISLAND

Cerebrospinal meningitis	1
Chicken pox	4
Diphtheria	3
Measles	2
Mumps	1
Scarlet fever	12
Tuberculosis	11
Typhoid fever	1
Whooping cough	2

SOUTH CAROLINA

Chicken pox	107
Dengue	2
Diphtheria	12
Hookworm disease	37
Influenza	1, 222
Malaria	125
Measles	178
Mumps	37
Paratyphoid fever	1

SOUTH CAROLINA—continued

	Cases
Pellagra	117
Pneumonia	5
Poliomyelitis	1
Scarlet fever	3
Smallpox	14
Tuberculosis	73
Typhoid fever	15
Whooping cough	258

TENNESSEE

Actinomycosis	1
Anthrax—Memphis	1
Cerebrospinal meningitis—Knoxville	1
Chicken pox	38
Diphtheria	8
Influenza	112
Malaria	9
Measles	121
Mumps	4
Ophthalmia neonatorum	1
Pellagra	11
Pneumonia	33
Scarlet fever	31
Smallpox	11
Tuberculosis	50
Typhoid fever	11
Whooping cough	61

TEXAS

Anthrax	1
Chicken pox	63
Diphtheria	11
Influenza	17
Measles	275
Mumps	21
Pellagra	1
Pneumonia	5
Scarlet fever	14
Smallpox	47
Tuberculosis	6
Typhoid fever	12
Whooping cough	20

UTAH

Chicken pox	45
Diphtheria	6
German measles	10
Influenza	2
Measles	63
Mumps	6
Pneumonia	13
Scarlet fever	29
Whooping cough	52

VERMONT

Chicken pox	14
Diphtheria	1
Measles	122
Mumps	42
Scarlet fever	12
Typhoid fever	1
Whooping cough	27

WASHINGTON

	Cases
Cerebrospinal meningitis	3
Chicken pox	104
Diphtheria	14
German measles	401
Measles	459
Mumps	125
Scarlet fever	60
Smallpox	21
Tuberculosis	1
Typhoid fever	4
Whooping cough	53

WEST VIRGINIA

Chicken pox	47
Diphtheria	12
Influenza	105
Measles	169
Scarlet fever	43
Smallpox	48
Tuberculosis	23
Typhoid fever	1
Whooping cough	60

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	7
Chicken pox	115
Diphtheria	18
German measles	3
Measles	126
Mumps	111
Ophthalmia neonatorum	1
Pneumonia	16
Poliomyelitis	1
Scarlet fever	39
Smallpox	1
Tuberculosis	13
Typhoid fever	1
Whooping cough	25
Scattering:	
Cerebrospinal meningitis	2
Chicken pox	107
Diphtheria	16
German measles	39
Influenza	43
Measles	721
Mumps	200
Pneumonia	15
Scarlet fever	88
Smallpox	6
Tuberculosis	45
Whooping cough	86

WYOMING

Chicken pox	2
Diphtheria	2
German measles	9
Measles	75
Mumps	11
Pneumonia	2
Rocky Mountain spotted fever:	
Fremont County	2
Natrona County	1
Scarlet fever	17
Smallpox	1
Tuberculosis	1

Reports for Week Ended April 23, 1927

ALABAMA

	Cases
Cerebrospinal meningitis	1
Chicken pox	51
Dengue	1
Diphtheria	31
Influenza	103
Lethargic encephalitis	1
Malaria	21
Measles	275
Mumps	21
Ophthalmia neonatorum	1
Pellagra	9
Pneumonia	99
Poliomyelitis	1
Scarlet fever	18
Smallpox	30
Tetanus	4
Tuberculosis	145
Typhoid fever	17
Typhus fever	1
Whooping cough	73

CALIFORNIA

	Cases
Botulism	1
Cerebrospinal meningitis:	
Butte County	1
Fresno County	1
Long Beach	1
Los Angeles	2
Sacramento	1
Sacramento County	1
San Francisco	2
Ventura	1
Chicken pox	478
Diphtheria	135
Influenza	38
Leprosy—Fresno County	1
Lethargic encephalitis	4
Measles	2,619
Mumps	185
Poliomyelitis—San Francisco	3
Scarlet fever	180
Smallpox	36
Tuberculosis	184
Typhoid fever	18
Whooping cough	195

DELAWARE

	Cases
Chicken pox	6
Diphtheria	2
Measles	13
Mumps	2
Pneumonia	3
Scarlet fever	21
Tuberculosis	5

DISTRICT OF COLUMBIA

	Cases
Chicken pox	54
Diphtheria	29
Influenza	2
Measles	11
Pneumonia	33
Scarlet Fever	27
Tuberculosis	32
Whooping cough	5

INDIANA

	Cases
Chicken pox	117
Diphtheria	26
Influenza	26
Measles	206
Mumps	2
Pneumonia	4
Scarlet fever	174
Smallpox	142
Tuberculosis	21
Typhoid fever	3
Whooping cough	36

IOWA

	Cases
Chicken pox	31
Diphtheria	43
German measles	3
Measles	195
Mumps	28
Pneumonia	2
Scarlet fever	28
Smallpox	11
Tuberculosis	7
Typhoid fever	1
Whooping cough	13

MINNESOTA

	Cases
Cerebrospinal meningitis	6
Chicken pox	151
Diphtheria	38
Influenza	10
Measles	226
Pneumonia	6
Scarlet fever	166
Smallpox	1
Tuberculosis	55
Typhoid fever	1
Whooping cough	22

MISSISSIPPI

	Cases
Diphtheria	4
Scarlet fever	3
Smallpox	2
Typhoid fever	6

MISSOURI

	Cases
Cerebrospinal meningitis	1
Chicken pox	67
Diphtheria	52
Influenza	10
Measles	367
Mumps	141
Pneumonia	3
Scarlet fever	122
Smallpox	14
Tuberculosis	56
Typhoid fever	3
Whooping cough	66

NEBRASKA

	Cases
Cerebrospinal meningitis	2
Chicken pox	48
Diphtheria	2
German measles	44
Influenza	1

NEBRASKA—continued

	Cases
Measles	528
Mumps	50
Pneumonia	1
Scarlet fever	47
Smallpox	28
Tuberculosis	2
Typhoid fever	1
Whooping cough	3

NORTH DAKOTA

Chicken pox	15
Diphtheria	12
German measles	6
Measles	157
Mumps	9
Pneumonia	24
Scarlet fever	60
Smallpox	6
Tuberculosis	2
Typhoid fever	4
Whooping cough	2

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Cerebrospinal meningitis—Craig County	1
Chicken pox	24
Diphtheria	18
Influenza	83
Malaria	26
Measles	433
Pneumonia	75
Poliomyelitis—Washita County	1
Scarlet fever	48
Smallpox	45
Typhoid fever	29
Whooping cough	17

PENNSYLVANIA

Chicken pox	532
Diphtheria	185
German measles	157
Lethargic encephalitis	2
Measles	705
Mumps	399
Ophthalmia neonatorum	4
Pneumonia	235
Puerperal fever	1
Scabies	1
Scarlet fever	522
Tuberculosis	159
Typhoid fever	16
Whooping cough	196

RHODE ISLAND

	Cases
Chicken pox	9
Diphtheria	10
German measles	2
Mumps	11
Scarlet fever	25
Septic sore throat	1
Tuberculosis	4
Whooping cough	7

SOUTH CAROLINA

Chicken pox	68
Dengue	2
Diphtheria	10
Hookworm disease	35
Influenza	1,088
Malaria	139
Measles	138
Mumps	1
Paratyphoid fever	1
Pellagra	71
Scarlet fever	8
Smallpox	23
Tuberculosis	38
Typhoid fever	6
Whooping cough	161

TENNESSEE

Chicken pox	31
Diphtheria	4
Influenza	106
Malaria	8
Measles	84
Mumps	27
Pellagra	14
Pneumonia	24
Rabies	2
Scarlet fever	8
Smallpox	9
Tuberculosis	22
Typhoid fever	13
Whooping cough	53

WYOMING

Chicken pox	13
Diphtheria	1
German measles	22
Measles	81
Mumps	55
Rocky Mountain spotted fever	6
Scarlet fever	15
Tuberculosis	1
Typhoid fever	1
Whooping cough	1

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March, 1927										
California	23	750	468	2	18,203		7	1,210	111	53
Florida	1	120	97	32	591	4	1	61	187	54
Idaho	0	23			655		0	121	53	0
Illinois	17	540	222	1	11,126		5	1,626	213	39
Kansas	2	55	32	1	4,803	3	5	776	188	7
Maine	0	15	57		710		1	124	1	13
Maryland	0	214	1,348	1	241	1	0	365	2	32
Minnesota	26	147	10		1,182		1	1,252	8	24
Mississippi		61	5,248	2,644	3,109	394	4	61	25	70
Missouri	7	193	54		991		1	579	332	9
North Carolina	2	125			2,211		1	149	260	21
North Dakota	9	15			918		9	312	13	4
Oklahoma [1]	6	61	549	44	969	21	0	205	190	66
Oregon	8	61	720	1	543		0	253	90	10
Rhode Island	2	53	7		11		1	160	0	0
Washington	19	80	117		1,558		3	458	242	20
Wyoming	0	3	1		261		1	134	14	0

[1] Exclusive of Oklahoma City and Tulsa.

March, 1927	Cases
Chicken pox:	
California	3,477
Florida	261
Idaho	34
Illinois	1,649
Kansas	575
Maine	130
Maryland	613
Minnesota	784
Mississippi	983
Missouri	387
North Carolina	754
North Dakota	55
Oklahoma	115
Oregon	148
Rhode Island	89
Washington	527
Wyoming	41
Conjunctivitis:	
Maine	1
Dengue:	
Florida	1
Mississippi	4
Dysentery:	
California (amoebic)	3
California (bacillary)	2
Florida	11
Illinois	24
Maryland	3
Minnesota	1
Mississippi (amoebic)	48
Mississippi (bacillary)	264
Oklahoma	7
Washington	1
German measles:	
California	266
Illinois	184
Kansas	42
Maine	214
German measles—Continued.	
Maryland	20
North Carolina	56
Rhode Island	5
Washington	1,860
Wyoming	106
Hookworm disease:	
Florida	215
Mississippi	341
Impetigo contagiosa:	
Maryland	3
Oregon	18
Jaundice (epidemic):	
California	4
Leprosy:	
California	4
Lead poisoning:	
Illinois	31
Missouri	1
Lethargic encephalitis:	
California	8
Florida	2
Illinois	8
Maryland	2
Minnesota	2
Rhode Island	2
Washington	7
Mumps:	
California	1,615
Florida	60
Idaho	38
Illinois	2,763
Kansas	290
Maine	70
Maryland	118
Mississippi	741
Missouri	315
North Dakota	27
Oklahoma	80
Oregon	81

	Cases
Mumps—Continued.	
Rhode Island	36
Washington	607
Wyoming	116
Ophthalmia neonatorum:	
California	2
Idaho	1
Illinois	59
Maryland	1
Mississippi	14
Missouri	3
North Carolina	1
Oklahoma	2
Rhode Island	3
Wyoming	1
Paratyphoid fever:	
California	5
Maine	8
Pink eye:	
Kansas	5
Polioencephalomyelitis:	
Wyoming	1
Puerperal septicemia:	
Illinois	6
Mississippi	62
Rabies in animals:	
California	39
Idaho	1
Maryland	16
Mississippi	8
Missouri	19
Oregon	4
Rabies in man:	
Kansas	2
Mississippi	1
Rocky Mountain spotted or tick fever:	
Idaho	2
Oregon	1
Scabies:	
Oregon	6
Septic sore throat:	
Illinois	7
Maryland	21
Missouri	43
North Carolina	2

	Cases
Septic sore throat—Continued.	
Oklahoma	1
Oregon	7
Rhode Island	4
Tetanus:	
California	5
Florida	18
Illinois	4
Maryland	4
Trachoma:	
California	31
Illinois	6
Kansas	4
Maryland	1
Mississippi	10
Missouri	15
Oklahoma	9
Rhode Island	2
Trichinosis:	
California	2
Typhus fever:	
Florida	2
Vincent's angina:	
Illinois	2
Maine	10
Maryland	2
Washington	1
Whooping cough:	
California	930
Florida	74
Idaho	39
Illinois	1,015
Kansas	252
Maine	177
Maryland	431
Minnesota	118
Mississippi	1,874
Missouri	221
North Carolina	3,526
North Dakota	22
Oklahoma	68
Oregon	39
Rhode Island	63
Washington	194
Wyoming	1

PLAGUE-PREVENTION WORK IN LOS ANGELES, CALIF.

The rodent division of the Los Angeles Department of Health reports that during the period from September 13, 1926, to April 16, 1927, 19,401 rats and 12,616 mice were collected. Three rats were found plague-infected, the last one being found on March 23, 1927, at 635 South Spring Street.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 30,800,000. The estimated population of the 92 cities reporting deaths is more than 30,150,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 16, 1927, and April 17, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,713	1,177	
98 cities	1,037	641	863
Measles:			
41 States	15,343	22,867	
98 cities	4,514	10,156	
Poliomyelitis:			
42 States	11	9	
Scarlet fever:			
42 States	5,177	4,212	
98 cities	2,314	1,786	1,184
Smallpox:			
42 States	864	815	
98 cities	143	151	125
Typhoid fever:			
42 States	275	247	
98 cities	48	40	45
Deaths reported			
Influenza and pneumonia:			
92 cities	1,014	1,665	
Smallpox:			
92 cities	0	9	
Los Angeles	0	9	

City reports for week ended April 16, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	7	1	1	0	0	1	1	2
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	3
Manchester	83,097	0	2	0	0	3	0	0	4
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,089	2	1	0	0	0	13	0	0
Massachusetts:									
Boston	779,620	70	53	32	4	1	82	122	21
Fall River	128,993	4	3	1	2	1	1	1	7
Springfield	142,065	5	2	3	2	2	2	10	1
Worcester	190,757	24	5	2	0	0	0	4	6
Rhode Island:									
Pawtucket	69,760	4	1	0	0	0	0	0	3
Providence	267,918	0	9	1	0	2	0	0	10
Connecticut:									
Bridgeport	(1)	0	5	3	0	0	9	3	3
Hartford	160,197	3	6	2	0	0	0	3	6
New Haven	178,927	4	3	0	0	1	0	5	5

[1] No estimate made.

City reports for week ended April 16, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	10	9	10	-------	0	15	9	16
New York	5,873,356	-------	219	412	43	21	50	429	225
Rochester	316,786	7	8	21	-------	0	6	3	6
Syracuse	182,003	28	6	1	-------	0	175	7	4
New Jersey:									
Camden	128,642	12	4	25	0	1	2	1	7
Newark	452,513	63	15	8	8	4	3	68	13
Trenton	132,020	5	3	4	1	0	0	0	8
Pennsylvania:									
Philadelphia	1,979,364	69	72	54	-------	13	19	98	55
Pittsburgh	631,563	52	17	15	-------	3	74	4	19
Reading	112,707	8	3	0	-------	0	6	28	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	16	7	4	1	4	4	23	19
Cleveland	936,485	93	21	45	1	2	9	68	20
Columbus	279,836	10	3	8	0	2	3	0	9
Toledo	287,380	39	3	1	2	2	22	2	5
Indiana:									
Fort Wayne	97,846	8	2	3	0	0	19	0	2
Indianapolis	358,819	64	5	7	0	0	17	14	8
South Bend	80,091	1	1	0	0	0	8	0	3
Terre Haute	71,071	5	1	0	0	0	10	0	2
Illinois:									
Chicago	2,995,239	87	78	67	15	4	1,033	143	86
Peoria	81,564	6	1	1	0	0	7	7	3
Springfield	63,923	5	0	0	1	1	14	0	0
Michigan:									
Detroit	1,245,824	77	47	47	3	2	12	72	44
Flint	130,316	25	3	4	0	0	13	0	4
Grand Rapids	153,698	13	4	1	0	0	9	1	0
Wisconsin:									
Kenosha	50,891	6	1	0	0	0	46	47	0
Madison	46,385	-------	0	-------	-------	-------	-------	-------	-------
Milwaukee	509,192	79	12	13	2	1	122	68	13
Racine	67,707	9	2	4	0	0	7	34	1
Superior	39,671	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	2	1	0	0	0	23	0	2
Minneapolis	425,435	55	15	12	0	3	8	0	17
St. Paul	246,001	27	14	1	0	1	15	1	18
Iowa:									
Davenport	52,469	1	0	0	0	-------	2	4	-------
Des Moines	141,441	0	2	2	0	-------	28	0	2
Sioux City	76,411	4	1	5	0	-------	47	2	-------
Waterloo	36,771	4	0	2	0	-------	43	0	-------
Missouri:									
Kansas City	367,481	19	6	2	1	1	60	6	10
St. Joseph	78,342	3	1	0	0	0	48	0	5
St. Louis	821,543	65	38	29	0	0	49	113	-------
North Dakota:									
Fargo	26,403	4	0	0	0	0	41	2	1
Grand Forks	14,811	0	1	0	0	-------	0	0	-------
South Dakota:									
Aberdeen	15,036	1	1	0	0	-------	35	1	-------
Sioux Falls	30,127	0	0	0	0	-------	30	0	-------
Nebraska:									
Lincoln	60,941	4	1	1	0	0	105	11	1
Omaha	211,768	13	3	1	0	0	82	21	9
Kansas:									
Topeka	55,411	14	1	3	1	1	215	0	0
Wichita	88,367	15	1	0	0	0	33	0	0

City reports for week ended April 16, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	2	1	0	0	0	0	5
Maryland:									
Baltimore	796,296	81	25	31	39	3	5	11	37
Cumberland	33,741	1	0	0	0	0	0	0	1
Frederick	12,035	0	1	0	0	0	0	0	1
District of Columbia:									
Washington	497,906	60	10	30	2	2	3	0	10
Virginia:									
Lynchburg	30,395	14	0	2	0	0	53	0	1
Norfolk	(1)	22	0	1	0	0	180	7	4
Richmond	186,403	4	2	5	0	3	139	3	5
Roanoke	58,208	5	1	1	0	2	2	0	5
West Virginia:									
Charleston	49,019	7	0	1	1	1	2	1	1
Wheeling	56,208	3	0	1	0	0	17	0	1
North Carolina:									
Raleigh	30,371	10	0	1	0	0	86	0	2
Wilmington	37,061	0	1	0	0	1	14	17	6
Winston-Salem	69,031	8	1	0	0	2	42	22	5
South Carolina:									
Charleston	73,125	3	0	0	52	1	13	2	2
Columbia	41,225	3	0	0	0		1	7	
Greenville	27,311		0						
Georgia:									
Atlanta	(1)	8	2	3	20	0	63	17	5
Brunswick	16,809	3	0	0	0	0	0	14	0
Savannah	93,134	0	0	0	17	6	8	0	9
Florida:									
St. Petersburg	26,847		0			0			1
Tampa	94,743	2	0	1	0	0	97	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309		2						
Louisville	305,935	1	4	3	1	0	4	4	11
Tennessee:									
Memphis	174,533	8	4	0	0	1	2	0	8
Nashville	136,220	5	0	1	0	1	3	4	3
Alabama:									
Birmingham	205,670	2	1	11	23	15	27	5	0
Mobile	65,955	2	1	0	0	0	10	0	1
Montgomery	46,481	26	0	1	0	0	32	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,634	1	0	0	0		60	1	
Little Rock	74,216	2	0	2	0	0	13	0	1
Louisiana:									
New Orleans	414,493	0	7	19	9	4	27	0	8
Shreveport	57,857	11	0	1	0	0	5	7	0
Oklahoma:									
Oklahoma City	(1)	3	1	1	0	0	19	2	5
Tulsa	124,478	21		2	0		347	26	
Texas:									
Dallas	194,450	14	3	2	2	2	130	2	5
Galveston	48,375	0	0	0	0	0	0	0	0
Houston	164,954	2	2	4	0	1	0	3	1
San Antonio	198,069	2	1	6	0	3	8	0	3
MOUNTAIN									
Montana:									
Billings	17,971	2	0	0	0	0	0	1	2
Great Falls	29,883	3	0	1	0	1	8	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	5	0	0	0	0	1	6	1
Idaho:									
Boise	23,042	3	1	1	0	0	3	0	0

(1) No estimate made.

City reports for week ended April 16, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—continued									
Colorado:									
Denver	280,911	13	10	7		1	150	2	8
Pueblo	43,787	3	1	0	0	0	52	0	2
New Mexico:									
Albuquerque	21,000	0	0	0	0	0	10	9	2
Utah:									
Salt Lake City	130,948	17	3	3	0	0	18	1	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	37	5	0	0		66	74	
Spokane	108,897	12	2	3	0		1	0	
Tacoma	104,455	12	1	3	0	0	55	1	2
Oregon:									
Portland	282,383	9	6	8	0	1	130	2	3
California:									
Los Angeles	(1)	59	39	24	8	0	585	16	24
Sacramento	72,260	10	2	3	0	1	14	1	3
San Francisco	557,530	48	20	11	1	3	124	99	5

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	3	0	0	0	0	0	1	2	0	1	21
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	0	6
Manchester	3	0	0	0	0	1	0	0	0	0	24
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	2	3
Burlington	0	0	0	0	0	0	0	0	0	2	3
Massachusetts:											
Boston	68	131	0	0	0	15	1	1	0	23	224
Fall River	4	3	0	0	0	4	1	1	0	0	33
Springfield	6	7	0	0	0	0	0	0	0	17	31
Worcester	8	9	0	0	0	7	1	0	0	7	65
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	0	19
Providence	8	10	0	0	0	1	1	0	0	5	64
Connecticut:											
Bridgeport	10	10	0	0	0	4	0	0	0	0	26
Hartford	4	10	0	0	0	1	0	0	0	3	41
New Haven	11	1	0	0	0	1	1	0	0	0	43
MIDDLE ATLANTIC											
New York:											
Buffalo	20	34	0	0	0	14	0	0	0	7	114
New York	252	891	1	0	0	[2] 131	9	6	1	94	1,613
Rochester	15	12	0	0	0	5	1	0	0	5	89
Syracuse	11	13	0	0	0	0	0	2	1	1	34
New Jersey:											
Camden	6	2	0	0	0	4	0	0	0	0	37
Newark	25	74	0	0	0	10	1	1	0	35	123
Trenton	3	6	0	0	0	1	1	0	0	0	45
Pennsylvania:											
Philadelphia	78	131	0	0	0	34	3	1	1	19	545
Pittsburgh	27	15	0	0	0	11	1	0	0	10	157
Reading	4	3	0	0	0	1	0	0	0	5	23

[1] No estimate made.

[2] Pulmonary tuberculosis only.

City reports for week ended April 16, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	31	2	0	0	13	1	1	0	3	146
Cleveland	31	46	0	0	0	17	1	1	0	40	--------
Columbus	11	14	2	0	0	7	0	0	0	17	86
Toledo	14	10	4	0	0	6	0	0	0	14	68
Indiana:											
Fort Wayne	5	4	3	4	0	2	0	0	0	0	32
Indianapolis	10	8	8	36	0	5	0	0	0	22	97
South Bend	3	5	0	1	0	2	0	0	0	2	21
Terre Haute	2	1	1	3	0	0	0	0	0	4	20
Illinois:											
Chicago	111	131	3	0	0	56	2	0	0	65	782
Peoria	2	4	0	0	0	2	0	0	0	1	22
Springfield	2	1	0	0	0	2	0	0	0	0	24
Michigan:											
Detroit	84	72	2	0	0	29	2	0	0	44	312
Flint	6	37	1	3	0	1	0	0	1	1	22
Grand Rapids	7	11	1	1	0	0	0	0	0	10	31
Wisconsin:											
Kenosha	3	12	1	0	0	0	0	0	0	0	4
Madison	3	--------	0	--------	--------	--------	0	--------	--------	--------	--------
Milwaukee	26	45	2	0	0	8	0	0	0	22	119
Racine	3	4	1	0	0	0	0	0	0	9	12
Superior	3	6	2	0	0	0	0	0	0	0	--------
WEST NORTH CENTRAL											
Minnesota:											
Duluth	5	10	2	0	0	3	0	0	0	0	34
Minneapolis	42	53	7	1	0	3	0	0	0	0	110
St. Paul	27	32	5	1	0	2	0	1	0	4	62
Iowa:											
Davenport	2	0	2	0	--------	--------	0	1	--------	0	--------
Des Moines	5	13	3	1	--------	3	0	0	--------	0	26
Sioux City	2	2	1	1	--------	--------	0	0	--------	3	--------
Waterloo	2	0	0	0	--------	--------	0	0	--------	1	--------
Missouri:											
Kansas City	11	20	2	6	0	6	1	0	0	16	94
St. Joseph	2	6	0	6	0	1	0	0	0	0	24
St. Louis	35	36	4	5	0	9	2	3	0	34	206
North Dakota:											
Fargo	2	8	1	0	0	2	0	2	0	0	--------
Grand Forks	0	7	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	2	1	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	2	3	1	0	--------	--------	0	0	--------	0	--------
Nebraska:											
Lincoln	2	2	1	0	0	0	0	0	0	3	11
Omaha	3	24	9	6	0	2	0	0	0	1	55
Kansas:											
Topeka	4	8	2	2	0	0	0	0	0	7	9
Wichita	3	1	3	0	0	0	0	0	0	12	16
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	7	0	0	0	2	0	0	0	1	40
Maryland:											
Baltimore	35	38	1	0	0	23	2	4	0	58	222
Cumberland	0	0	0	0	0	0	0	0	0	1	10
Frederick	1	1	0	0	0	0	0	0	0	1	5
District of Columbia:											
Washington	24	12	2	0	0	17	1	0	0	16	158
Virginia:											
Lynchburg	1	0	0	0	0	1	0	0	0	1	14
Norfolk	1	7	0	0	0	3	0	1	0	12	--------
Richmond	2	7	0	0	0	5	0	0	0	0	57
Roanoke	1	3	1	4	0	3	0	0	0	0	22

City reports for week ended April 16, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
West Virginia:											
Charleston	0	0	0	1	0	0	0	0	1	8	31
Wheeling	2	0	0	0	0	1	0	0	0	0	13
North Carolina:											
Raleigh	0	2	0	0	0	2	0	0	0	22	21
Wilmington	0	0	0	0	0	2	0	0	0	6	18
Winston-Salem	0	0	5	0	0	0	0	0	0	34	26
South Carolina:											
Charleston	0	1	0	2	0	2	0	0	0	3	17
Columbia	0	0	0	0	------	------	0	1	------	8	------
Greenville	0	------	0	------	------	------	0	------	------	------	------
Georgia:											
Atlanta	3	3	3	3	0	6	0	1	0	15	79
Brunswick	0	0	0	2	0	0	0	0	0	0	2
Savannah	1	0	1	1	0	1	0	0	0	2	29
Florida:											
St. Petersburg	0	------	0	------	0	0	0	------	0	------	13
Tampa	0	2	0	1	0	6	0	0	0	5	45
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	------	1	------	------	------	1	------	------	------	------
Louisville	6	15	0	2	0	4	1	0	0	27	68
Tennessee:											
Memphis	4	21	4	6	0	7	0	1	0	9	87
Nashville	2	1	1	0	0	5	1	0	0	3	39
Alabama:											
Birmingham	1	4	10	11	0	6	1	4	0	15	75
Mobile	0	0	1	0	0	0	0	1	1	0	14
Montgomery	0	0	0	0	0	0	0	1	0	25	------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	------	------	0	0	------	3	10
Little Rock	1	0	0	0	0	1	1	1	0	1	------
Louisiana:											
New Orleans	5	2	2	0	0	10	2	3	0	2	119
Shreveport	1	0	1	1	0	3	0	0	0	2	26
Oklahoma:											
Oklahoma City	2	0	3	0	0	2	0	1	0	3	23
Tulsa	------	2	------	1	------	------	1	0	------	3	------
Texas:											
Dallas	2	5	2	12	0	2	1	0	0	0	41
Galveston	0	0	0	0	0	0	0	0	0	0	13
Houston	1	4	1	6	0	1	0	0	1	0	48
San Antonio	1	1	0	2	0	4	0	0	1	0	67
MOUNTAIN											
Montana:											
Billings	0	1	0	0	0	0	0	0	0	0	5
Great Falls	1	3	1	0	0	0	0	0	0	0	11
Helena	0	0	1	0	0	0	0	0	0	0	3
Missoula	0	7	0	0	0	0	0	0	0	0	4
Idaho:											
Boise	1	0	0	0	0	0	0	1	0	0	6
Colorado:											
Denver	11	69	2	0	0	7	1	0	0	1	80
Pueblo	1	18	0	0	0	1	1	0	0	0	14
New Mexico:											
Albuquerque	0	1	0	0	0	2	0	0	0	0	9
Utah:											
Salt Lake City	2	8	0	3	0	0	0	0	0	9	32
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	1

City reports for week ended April 16, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
PACIFIC											
Washington:											
Seattle	9	4	4	3			0	2		29	
Spokane	4	19	5	6			0	1		3	
Tacoma	2	4	3	0	0	0	0	0	0	0	28
Oregon:											
Portland	6	2	6	0	0	3	1	0	0	7	72
California:											
Los Angeles	19	37	4	0	0	31	1	0	1	19	249
Sacramento	2	1	1	1	0	0	0	1	0	0	22
San Francisco	13	28	4	0	0	10	1	3	0	17	140

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis (infantile paralysis): Cases	Poliomyelitis (infantile paralysis): Deaths
NEW ENGLAND									
Maine:									
Portland	1	1	0	0	0	0	0	0	0
Massachusetts:									
Boston	1	2	1	0	0	0	0	0	0
Rhode Island:									
Providence	0	0	0	0	0	0	0	1	0
Connecticut:									
Hartford	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	9	3	3	4	0	0	0	1	0
Rochester	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	0	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	0	0	0	1	0	0	0	0	0
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	2	2	2	2	0	0	0	0	0
Michigan:									
Detroit	2	0	2	2	0	0	0	0	0
Wisconsin:									
Milwaukee	5	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	1	1	0	0	0	0	0	0	0
Minneapolis	0	1	0	0	0	0	0	0	0
St. Paul	0	0	0	1	0	0	0	0	0
Missouri:									
Kansas City	2	1	0	0	0	0	0	1	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	1	0
Kansas:									
Topeka	1	0	0	0	0	0	0	0	0

[1] Rabies (human): 1 case and 1 death at New York, N. Y., and 1 case at Savannah, Ga.

City reports for week ended April 16, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	1	0	0	0	0	1	0	0
District of Columbia:									
Washington	0	0	1	0	0	0	0	0	0
Virginia:									
Norfolk	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina									
Charleston [2]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	0	0	1	0	0	1	1
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans	1	0	0	0	0	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
Galveston	1	1	0	0	0	0	0	0	0
MOUNTAIN									
Montana:									
Great Falls	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	1	1	0	0	0	0	0	0	0
Pueblo	2	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1	0	0	0	0	0	0	0	0
Spokane	0	0	0	0	0	0	0	1	0
Oregon:									
Portland	1	1	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	1	0	1	0	0	0	0
Sacramento	3	1	0	0	0	0	0	0	0
San Francisco	0	1	0	1	3	3	0	0	0

[1] Rabies (human): 1 case and 1 death at New York, N. Y., and 1 case at Savannah, Ga.
[2] Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 16, 1927, compared with those for a like period ended April 17, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, March 13 to April 16, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927
101 cities	120	171	[2] 131	178	[3] 126	191	116	[4] 202	110	[5] 175
New England	127	137	139	130	80	137	125	181	47	104
Middle Atlantic	[illegible]	225	142	227	146	264	125	269	119	271
East North Central	68	157	102	179	113	160	88	170	86	[3] 136
West North Central	147	127	149	121	159	159	204	171	246	109
South Atlantic	69	141	[2] 62	147	95	[illegible]	86	126	89	
East South Central	26	31	56	41	57	61	114	66	42	
West South Central	103	164	155	176	60	180	60	340	30	
Mountain	73	126	255	81	146	108	118	171	191	
Pacific	281	165	238	194	201	170	137	126	134	

MEASLES CASE RATES

101 cities	1,783	913	[2] 1,834	934	[3] 1,693	[3] 805	1,781	[4] 864	1,770	[5] 764
New England	1,722	211	1,344	197	1,460	204	1,568	269	1,809	223
Middle Atlantic	1,858	93	1,839	114	1,850	128	1,773	159	1,702	173
East North Central	1,994	1,160	2,091	1,092	[3] 1,504	[3] 884	1,572	[3] 920	1,471	[3] 861
West North Central	1,892	1,564	2,323	1,519	2,428	1,558	3,283	1,304	3,354	1,318
South Atlantic	2,772	1,015	[2] 2,731	977	2,649	1,096	2,630	[2] 1,003	2,919	[6] 1,327
East South Atlantic	2,260	443	2,906	438	2,875	285	3,020	611	2,772	[7] 422
West South Central	43	1,040	125	1,778	43	948	236	2,143	133	1,019
Mountain	328	5,412	310	5,088	556	3 452	419	2,796	529	2,086
Pacific	319	2,930	450	3.170	246	2,767	388	3,058	372	2,212

SCARLET FEVER CASE RATES

101 cities	300	433	[2] 324	424	[3] 296	[3] 439	274	[4] 397	307	[5] 391
New England	403	546	354	478	391	513	318	362	373	423
Middle Atlantic	202	573	210	581	210	614	176	595	187	583
East North Central	340	359	407	351	[3] 331	[3] 323	330	[3] 272	343	[3] 260
West North Central	815	427	897	401	789	469	845	435	910	397
South Atlantic	156	219	[2] 155	179	173	197	145	[2] 189	181	[6] 152
East South Central	145	209	140	163	217	173	165	178	150	[7] 222
West South Central	137	63	146	59	86	55	116	101	133	50
Mountain	246	1,340	210	1,133	146	1,214	100	944	173	953
Pacific	279	254	287	361	249	340	155	243	338	243

SMALLPOX CASE RATES

101 cities	36	31	[2] 37	30	[3] 42	[3] 28	32	[4] 27	26	[5] 24
New England	0	0	0	0	0	2	0	0	0	0
Middle Atlantic	0	1	0	0	0	0	0	0	0	0
East North Central	26	35	10	29	[3] 17	[3] 34	18	[3] 37	14	[3] 32
West North Central	50	50	54	69	46	30	50	42	42	56
South Atlantic	60	51	[2] 95	42	41	62	67	[2] 27	43	[6] 26
East South Central	83	132	57	107	98	122	88	87	52	[7] 103
West South Central	137	46	142	75	90	63	133	105	95	88
Mountain	64	90	27	18	55	9	27	27	27	27
Pacific	163	84	209	99	346	68	137	55	137	26

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Madison, Wis., and Norfolk, Va., not included.
[5] Madison, Wis., Greenville, S. C., and Covington, Ky., not included.
[6] Greenville, S. C., not included.
[7] Covington, Ky., not included.

Summary of weekly reports from cities, March 13 to April 16, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued.

TYPHOID FEVER CASE RATES

	Week ended—									
	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927
101 cities	6	7	[2] 8	8	[3] 10	[3] 8	7	[4] 8	7	[5] 8
New England	0	5	0	5	7	12	9	7	9	9
Middle Atlantic	4	6	10	7	8	6	5	6	7	5
East North Central	3	4	4	4	[3] 3	[3] 1	3	[3] 5	2	[3] 1
West North Central	2	0	2	4	8	2	10	2	4	12
South Atlantic	20	11	[2] 16	13	17	16	6	[2] 10	4	[6] 13
East South Central	21	20	16	41	31	20	10	36	0	[7] 38
West South Central	9	13	9	29	34	25	17	38	34	17
Mountain	9	9	27	0	36	0	18	0	9	9
Pacific	5	18	13	10	11	24	13	8	13	18

INFLUENZA DEATH RATES

	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927
95 cities	76	31	[2] 97	27	[3] 89	[3] 22	74	[4] 23	53	[5] 22
New England	45	19	68	7	108	12	83	7	52	16
Middle Atlantic	95	32	112	26	100	21	76	26	59	21
East North Central	65	18	104	16	[3] 110	[3] 14	81	[3] 9	67	[3] 11
West North Central	32	21	38	15	38	4	32	17	23	12
South Atlantic	51	79	[2] 83	63	59	37	59	[2] 41	43	[6] 39
East South Central	222	87	253	92	98	102	238	71	47	[7] 92
West South Central	146	22	115	26	102	30	66	52	53	43
Mountain	46	18	64	27	27	27	46	36	46	18
Pacific	18	14	14	28	21	24	14	17	21	14

PNEUMONIA DEATH RATES

	Mar. 20, 1926	Mar. 19, 1927	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927
95 cities	372	183	[2] 372	166	[3] 335	[3] 163	277	[4] 163	241	[5] 154
New England	356	172	429	156	467	156	358	139	302	156
Middle Atlantic	504	226	494	199	433	186	339	199	288	176
East North Central	355	142	352	141	[3] 322	[3] 148	245	[3] 132	233	[3] 142
West North Central	146	114	160	102	160	93	186	137	133	129
South Atlantic	352	254	[2] 333	215	291	224	236	[2] 159	208	[6] 188
East South Central	398	183	476	188	357	127	429	209	331	[7] 124
West South Central	260	190	163	116	185	159	159	142	181	78
Mountain	201	162	191	171	155	162	137	243	155	153
Pacific	99	93	117	110	57	128	148	117	117	117

[2] Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Madison, Wis., and Norfolk, Va., not included.
[5] Madison, Wis., Greenville, S. C., and Covington, Ky., not included.
[6] Greenville, S. C., not included.
[7] Covington, Ky., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended April 2, 1927.—The following report for the week ended April 2, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	4	2	0	0	0	0
British India:						
Karachi	----	0	0	0	5	0
Bombay	----	6	0	0	85	48
Calcutta	----	0	----	59	306	232
Rangoon	----	2	----	1	48	13
Bassein	----	9	----	4	0	0
Madras	----	0	----	0	20	2
Negapatam	----	0	----	0	1	1
Siam: Bangkok	0	0	16	9	3	3
Straits Settlements: Singapore	0	0	0	0	1	1

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
French Indo-China: Saigon	0	0	3	2	1	0
China: Canton	0	0	0	0	1	0
Hongkong	0	0	0	0	10	9
Manchuria: Antung	0	0	0	0	1	0
Kwantung: Dairen	0	0	0	0	4	1
Japan:						
Kobe	0	0	0	0	1	0
Osaka	0	0	0	0	1	0
Egypt: Alexandria	1	0	0	0	1	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Perim, Kamaran.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Tuticorin, Vizagapatam.

Portugues India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Palembang, Balikpapan.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Haiphong, Tourane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Shanghai, Tientsin.

Macao.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo, Fusan.

Manchuria.—Yingkow, Mukden, Changchum, Harbin.

Kwantung.—Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Kobe.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Samoa.—Apia.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira-Lourenco-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—Saint Denis.

Mauritius.—Port Louis.

Madagascar—Majunga, Tamatave.

Reports had not been received in time for publication from:

Iraq.—Basrah.
Kenya.—Mombasa.
Dutch East Indies.—Tarakan, Samarinda, Surabaya, Padang, Makasar.
U. S. S. R.—Vladivostock.

Belated information:

Week ending March 26th: *Mombasa:* One plague-infected rat has been found.

Movement of infected ships:

Fremantle.—*S. S. Fezara* arrived from Colombo infected with smallpox.

Singapore.—*S. S. Taifoksing* arrived on April 4th from Swatow infected with smallpox.

CANADA

Vital statistics—Quebec—February, 1927.—Births and deaths in the Province of Quebec for the month of January, 1927, were reported as follows:

Estimated population	2,604,000
Births	5,421
Birth rate per 1,000 population	24.98
Deaths	2,602
Death rate per 1,000 population	11.99
Deaths under 1 year	780
Infant mortality rate	143.88
Deaths from—	
Accidents (all)	27
Cancer	119
Cerebrospinal meningitis	6
Diabetes	22
Diphtheria	37
Heart disease	355
Influenza	128
Measles	51
Pneumonia	270
Scarlet fever	14
Syphilis	9
Tuberculosis (pulmonary)	203
Tuberculosis (other forms)	43
Typhoid fever	15
Whooping cough	51

CHILE

Improved sanitary conditions—Antofagasta.—Information received under date of January 20, 1927, indicates that progress has been made in modernizing health regulation at Antofagasta, Chile, and in the application of general sanitary methods. Insanitary zones and tenement houses have been cleaned up or closed. Special appropriations have been provided for the construction of cheap dwellings for workingmen and in November, 1926, an asylum for the aged and infirm was opened in Antofagasta.

ESTONIA

Communicable diseases—February, 1927.—During the month of February, 1927, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Diphtheria	62	Tuberculosis	194
Measles	413	Typhoid fever	20
Scarlet fever	695	Typhus fever	6

Population, estimated, 1,114,630.

GERMANY

Vital statistics—Bavaria—years 1926, 1925, and 1913.—The following statistics of marriages and births in Bavaria in 1926, together with the figures for 1925 and 1913, were given in a report of the Bavarian Bureau of Statistics:

	Marriages			Births, including stillborn		
	1926	1925	1913	1926	1925	1913
First quarter	10,758	10,976	10,708	43,814	44,977	52,427
Second quarter	15,128	14,904	14,719	42,468	45,350	52,345
Third quarter	11,838	12,022	10,718	39,814	41,631	52,615
Fourth quarter	14,926	14,998	12,293	38,254	39,923	50,070
Total	52,650	52,900	48,438	164,350	171,881	207,457

These figures show that the number of marriages decreased slightly in 1926 as compared with 1925, although the number is still considerably larger than in 1913. Births in 1926, on the other hand, showed a large decrease from the figures for 1913. This was due chiefly to the unfavorable industrial situation and the great increase in the cost of living, factors which made it impossible in many cases to raise large families.

Deaths.—The number of deaths during the past year, together with those in 1925 and 1913, were as follows:

	Deaths, including stillborn			Infant mortality (one year old and under)		
	1926	1925	1913	1926	1925	1913
First quarter	27,725	27,264	34,209	5,982	6,170	9,098
Second quarter	26,484	26,607	33,289	5,691	5,576	9,676
Third quarter	23,167	23,838	29,545	4,914	5,566	9,382
Fourth quarter	23,274	26,339	29,093	4,113	5,436	8,649
Total	100,650	104,048	126,136	20,700	22,748	36,805

Although the total number of deaths in 1926 was smaller than in 1913, the infant mortality rate showing a decrease of 40 per cent, the number of births was insufficient to make the excess of births over deaths equal to that in 1913. The excess of births over deaths for the three years is as follows:

	1926	1925	1913
First quarter	16,089	17,713	18,218
Second quarter	15,984	18,743	19,056
Third quarter	16,647	17,793	23,070
Fourth quarter	14,980	13,584	20,977
Total	63,700	67,833	81,321

HAWAII TERRITORY

Rodent operations—Island of Hawaii—March, 1927.—During the month of March, 1927, rodent operations in the Island of Hawaii were reported as follows:

Rodents exterminated	10,498
Rodents examined	8,740
Rodents found plague infected	0
Human plague	0

Last case of rodent plague, July 24, 1926; last case of human plague, October 6, 1926.

MADAGASCAR

Plague—February 1-15, 1927.—During the period February 1 to 15, 1927, 236 cases of plague with 227 deaths were reported in the Island of Madagascar. The occurrence was distributed in the Provinces of Ambositra, Antisirabe, Itasy, Moramanga, and Tananarive, including the town of Tananarive. The distribution by type was: Bubonic, 115 cases; pneumonic, 56; septicemic, 65.

MALTA

Communicable diseases—March 1-31, 1927.—During the month of March, 1927, communicable diseases were reported in the island of Malta as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	22	Pneumonia	9
Chicken pox	15	Puerperal fever	2
Diphtheria	7	Scarlet fever	2
Erysipelas	7	Trachoma	51
Influenza	26	Tuberculosis	29
Lethargic encephalitis	3	Typhoid fever	35
Malta fever	42	Whooping cough	252

UNION OF SOUTH AFRICA

Epidemic cerebrospinal meningitis—Cape Province—January 1-March 5, 1927.—Epidemic cerebrospinal meningitis was reported present in Cape Province, Union of South Africa, from January 1 to March 5, 1927, with 17 cases occurring in three localities. Of these, 11 cases with 6 deaths were in Europeans. The localities affected were in the Malmsbury district.

Plague—Cape Province—March 6-12, 1927.—During the week ended March 12, 1927, three cases of plague with two deaths were reported in Cape Province. The occurrence was in Richmond district, on a farm.

Rabies.—The death of a European child, believed to be due to rabies, was reported during the week ended February 26, 1927, in the Standerton district, Transvaal, Union of South Africa. Later

information received under date of March 25, 1927, shows that the child had been bitten in December, 1926, by a dog and on January 6, 1927, by a mongoose. The dog was stated to have appeared normal at the time of the biting, but 10 days later was found dead after convulsive fits. Two cases suspicious of rabies were reported later as occurring in the vicinity in a child and a woman, with fatal termination, and a third case in an adult male who recovered. The occurrence was on farms.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given

Reports Received During Week Ended May 6, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
French Settlements in India				Jan. 2-22, 1927: Cases, 10; deaths, 7.
India:				
Calcutta	Mar. 13-19	59	52	
Rangoon	Mar. 13-19	4	3	
Indo-China (French)				Sept. 1-Dec. 31, 1926: Cases, 5,062.
Do				Jan. 1-31, 1927: Cases, 490.

PLAGUE

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Kenya Colony—				
Mombasa	Feb. 27-Mar. 19	7	7	
Ceylon:				
Colombo	Mar. 13-19	8	5	Plague rodents: Three.
India:				
Bombay	Mar. 12-19	3	2	
Madras Presidency	Feb. 27-Mar. 5	89	33	
Rangoon	Mar. 13-19	4	3	
Indo-China (French)	Sept. 1-Dec. 31	18	15	
Do	Jan. 1-31	12		
Java:				
Batavia	Mar. 6-19	54	54	Province.
East Java and Madura	Feb. 27-Mar. 5	4	4	
Madagascar				Feb. 1-15, 1927: Cases, 236; deaths, 227. Bubonic, 115; pneumonic, 56; septicemic, 65.
Province—				
Ambositra	Feb. 1-15	14	12	
Antisirabe	do	37	37	
Itasy	do	63	57	
Moramanga	do	8	8	
Tananarive	do	106	106	
Tananarive Town	do	8	7	
Senegal:				
Tivaouane	Mar. 28-Apr. 3	2	2	
Thiès	do	3	5	
Union of South Africa:				
Cape Province—				
Richmond District	Mar. 6-12	3	2	In Europeans, on farm.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria				Jan. 21-Feb. 20, 1927: Cases, 241.
British East Africa:				
Tanganyika Territory	Feb. 20-Mar. 5		14	
Canada:				
Alberta—				
Edmonton	Mar. 1-31	13		
Manitoba—				
Winnipeg	Apr. 16-22	1		
Ontario—				
Ottawa	Apr. 10-16	2		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended May 6, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Chefoo	Mar. 13-19			Present.
Foochow	Feb. 27-Mar. 19			Do.
Hongkong	Mar. 13-19	14	3	
Manchuria—				
Kai-yuan	Mar. 20-26	1		
Tientsin	Mar. 13-26	3		
Chosen				Jan. 21-Feb. 20, 1927: Cases, 7; deaths, 1.
French Settlements, India	Dec. 19-Jan. 1	9	9	
Do	Jan. 2-22	24	24	
French Sudan:				
Kita	Mar. 28-Apr. 3			Present in vicinity
Great Britain:				
England—				
London	Reported Apr. 28	6		
Newcastle-on-Tyne	Apr. 3-9	1		
India:				
Bombay	Mar. 13-19	65	33	
Calcutta	do	278	232	
Karachi	Mar. 20-26	1		
Madras	do	22	2	
Rangoon	Mar. 13-19	29	9	
Indo-China (French):				
Saigon	Mar. 6-12	1		
Italy				Jan. 2-15, 1927: Cases, 2.
Japan				Dec. 26, 1926-Jan. 1, 1927: Cases, 2.
Do				Jan. 2-9, 1927: Cases, 28.
Java:				
Batavia	Mar. 13-19	1		
Mexico				Nov. 1-30, 1926: Deaths, 111.
Saltillo	Apr. 3-9		1	
Nigeria				Dec. 1-31, 1926: Cases, 87; deaths, 36.
Portugal:				
Lisbon	Mar. 27-Apr. 2	2		
Senegal:				
Dakar	Mar. 28-Apr. 3	1		
Straits Settlements:				
Singapore	Feb. 20-26	1		
Tunisia				Feb. 1-20, 1927: Cases, 10.

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria				Jan. 21-Feb. 20, 1927: Cases, 63; deaths, 7.
Bulgaria				Jan. 1-31, 1927: Cases, 7, deaths, 3.
Chile:				
Santiago	Nov. 15-Dec. 31	7		
Chosen				Dec. 1-31, 1926: Cases, 11; deaths, 3.
Estonia				Feb. 1-28, 1927: Cases, 6.
Japan				Jan. 2-29, 1927: Cases, 2.
Lithuania				Jan. 1-31, 1927: Cases, 24.
Mexico				Nov. 1-30, 1926: Cases, 42.
Poland				Feb. 27-Mar. 5, 1927: Cases, 101; deaths, 11.
Tunisia				Feb. 1-20, 1927: Cases, 51.
Union of South Africa:				
Cape Province—				
Clydesdale	Mar. 6-12			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-Feb. 12			Cases, 15,862; deaths, 8,910.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Mar. 12	542	416	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar 19	12	9	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Mar. 19	49	44	
Indo-China	July 1-Aug. 31			Cases, 3,446; deaths, 2,276.
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases 7,847; deaths, 5,164.
Do	Jan. 2-Mar. 5			Cases, 333; deaths, 251.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Mar. 5	40	21	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-31	3		
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—Kisumu	Jan. 16-22	1	1	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Mar. 5	33	17	10 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Present.
Do	Feb 6-Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-Mar. 18			Cases, 14.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan 27	1		
Port Said	Mar. 12-18	2	1	
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Piræus	Apr. 2	1		
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-Feb. 19			Cases, 9,697; deaths, 6,413.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Mar. 12	11	10	
Madras	Jan. 31-Jan. 1	581	324	
Do	Oct. 2-Feb. 26	757	472	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Mar. 5	44	40	
Do	Feb. 1-28			Rats found plague infected, 12.
Indo-China	July 1-Aug. 31			Cases, 34; deaths, 19.
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18
Iraq:				
Baghdad	Jan. 23-Feb. 5	2	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Mar. 5	233	226	Do.
East Java and Madura	Oct. 24-Jan. 1	17	17	
Do	Jan. 2-Feb. 19	14	14	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan. 1-31	32	32	
Analalava	Oct. 16-31	1	1	
Antisirabe	Dec. 16-31	2	2	
Do	Jan. 1-31	17	17	
Diego-Suarez	do	7	7	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan. 1-31	29	29	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-31	42	40	
Tamatave	Oct. 16-Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1-31	138	133	
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	34	
Do	Jan. 1-31	11	11	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Do	Jan. 1-31	5	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Nigeria	Aug. 1-Nov. 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-Feb. 28	79	18	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	Feb. 1-28	6	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb 28	6		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-Feb. 28	66	16	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Balem.
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Tivaouane	Dec. 19-25	6	2	In interior.
Do	Mar. 21-27	2	2	Do
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Mar. 5			Cases, 9; deaths, 7.
Bangkok	Feb. 27-Mar. 5	1	1	
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 48.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Feb. 19	3	1	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Orange Free State	do			Cases, 12; deaths, 2.
Bloomfontein district	Feb. 27-Mar. 5	2	2	
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-20	86		
Algiers	Dec. 11-31	4		
Do	Jan. 1-Mar. 10	8		
Oran	Mar. 21-31	1		
Angola	Oct. 1-15			Present in Congo district.
Congo	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange	Feb. 2-15	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,033; deaths, 2,180
Do	Jan. 2-Mar. 19	63	31	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-15	34	7	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do	Feb. 26-Mar. 4	55	2	
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Apr. 9			Cases, 548.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Apr. 9	203		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Apr. 2	40	1	
Edmonton	Dec. 1-31	4		
Do	Jan. 1-31	5		
British Columbia—				
Vancouver	Jan. 31-Mar. 20	7		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Apr. 9	22		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Apr. 9	8		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Apr. 9	273		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Mar. 26	6		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Apr. 9	79	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Apr. 9	48		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-Feb. 26	2		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Feb. 19			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Feb. 26			Do.
Foochow	Nov. 7-Dec. 25			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 12	56	38	
Manchuria—				
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 20-Feb. 26		2	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-Feb. 26	20		
Chosen	Aug. 1-Nov. 30	53	19	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Mar. 20	19	3	
French Settlements in India	Aug. 29-Dec. 18	118	118	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Mar. 26			Cases, 5,749.
Birmingham	Mar. 13-19	5		
Bradford	Jan. 9-22	2		
Cardiff	Feb. 13-19	1		
Leeds	Mar. 27-Apr. 2	1		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Apr. 2	18		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Apr. 2	543	1	
Wakefield	Jan. 30-Feb. 2	2		
Scotland—				
Dundee	Reported Mar. 31	42		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-Feb. 28		51	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,006.
Do	Jan. 2-Feb. 19			Cases, 31,471, deaths, 7,645.
Bombay	Nov. 7-Jan. 1	37	20	
Do	Jan. 2-Mar. 12	346	186	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-Mar. 12	1,598	1,140	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Mar. 5	32	25	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Mar. 19	242	7	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Mar. 12	181	35	
Indo-China:				
Saigon	Dec. 26-Jan. 1	3		
Do	Feb. 6-12	1		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-Mar. 5	5	1	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Apr. 2	105		Do.
Japan	Oct. 24-Dec. 25	25		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 4		4	
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Mar. 26	6		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-12		1	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Apr. 2		25	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico—Continued.				
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Nov. 30	78	4	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Mar. 26	31		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Mar. 6	3		
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Siam	Apr. 1-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Mar. 5			Cases, 64; deaths, 30.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Mar. 5	34	21	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Apr. 2	9		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-15	3	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-20	8		
Tunis	Jan. 1-Mar. 10	3		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-20			Cases, 21.
Algiers	Feb. 1-Mar. 20	33		
Oran	Mar. 21-31	7		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Chile	Sept. 15-Nov. 15	39	4	
Concepcion	do	1		
Do	Jan. 23-29		1	
Lebu	Sept 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	do	18	2	
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Mar. 19	5	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Chosen	Aug. 1-Nov. 30	43	2	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do	Jan. 1-Feb. 28	48		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-Mar. 25	2		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-31	7		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-28	4		
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Ireland:				
Clare County—Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan:				
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Mexico	July 1-Oct. 31			Deaths, 534.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Mar. 26	70		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to April 29, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Feb. 19			Cases, 414; deaths, 32
Rumania	Aug 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,000		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-20	21		
Tunis	Jan. 21-Mar. 31	4		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233, deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-31	38	4	
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct 1-31	1		
Do	Jan 1-31	6		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb 19	12	3	
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec 31	30	2	
Do	Jan. 1-Feb. 28	65	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE *Chief of Division*

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PUBLIC HEALTH REPORTS

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A STUDY OF THE PELLAGRA-PREVENTIVE ACTION OF THE TOMATO, CARROT, AND RUTABAGA TURNIP

By JOSEPH GOLDBERGER and G. A. WHEELER, *Surgeons, United States Public Health Service*

Following upon the demonstration of the preventability of pellagra by means of an appropriate diet (1) a study of the preventive value of individual foods was begun at the Georgia State Sanitarium and, thanks to the sustained cooperation of its trustees, superintendent, officers, and staff, has been carried on there steadily ever since, now about 10 years. Certain of the results of that study, namely, those of fresh meat (2) (5), milk (2) (3) (4) (5), butter (2) (5), cod-liver oil (2), dried beans (4), casein (4), and yeast (4) (5), have already been reported. At this time we desire to report the results of that study dealing with tomatoes, carrots, and rutabagas.

TOMATOES

Soon after beginning the study of the pellagra-preventive value of individual foods it was found that, although there was reason to believe that the diet of the institution at which the study was being conducted included, in general, sufficient of the vitamin-containing foods to provide at least the minimum requirement of the known vitamins, the supply of these, particularly of vitamins C and A, was quite irregular and fluctuated widely, depending as it did practically exclusively on the supply of fresh vegetables, a supply that is markedly influenced by season and other factors affecting availability. Accordingly, with the object of improving the diet by correcting any possible faults that might arise from this cause, we replaced the fluctuating and irregular supply of fresh vegetables in the diet of the patients coming under our observation with a regular daily supply, at first, of 3 ounces, later of 4.5 ounces, of the juice expressed from canned tomatoes. The incidence of pellagra among patients receiving this tomato juice was not appreciably different from what it had been before this change in the fresh-vegetable ration was made. In consequence, a previously formed impression that tomatoes, or at least canned tomatoes, were lacking in the pellagra-preventive factor, was strengthened in our minds, and this all the more as we had observed two or three instances of pellagra in patients

who, for considerable periods, had taken daily approximately 170 grams (6 ounces) of such tomato juice (3) (5). Somewhat later, however, some observations in connection with our study of experimental black tongue (8) suggested that this view might not be well founded; that we had, perhaps, not taken sufficient account of the factor of quantity; for, although 170 grams (6 ounces) of tomato juice a day would seem to be a fairly liberal amount, yet, recalling our experience with milk (2) (3) (4) (5), it seemed possible that, if taken as liberally as milk is frequently taken, the tomato juice might be found to possess definite pellagra-preventive action.

These and other considerations suggested the desirability of studying this vegetable more directly than we had yet done. Accordingly, we began a test of the pellagra-preventive action of tomato juice early in April, 1925. A high grade of commercial canned tomatoes was secured and the desired daily quantity of juice was obtained by pressing through a cloth. The daily ration of this juice was the same as that which had been allowed of buttermilk (2) in the study of that food, namely, 1,200 grams (40 ounces). This was divided into three portions and was taken by the patients as a beverage with each of the three daily meals.

Encouraged by the indications afforded by preliminary trials of this quantity of juice in some active cases of pellagra, we continued the study as a preventive one until late in June, 1926. It may, in passing, be stated that with hardly a single exception the patients took this juice with relish. The composition of the tomato juice-supplemented diet is shown in Table 1.

In all, 21 insane patients came under observation for preventive treatment with tomato juice. Of these, 1 remained under observation for too brief a period to be of significance, 1 for approximately 11 months, and 19 for at least one year. None developed any recognizable evidence of the disease while under observation.

Since our long experience with this class of patients has led us to expect that some 40 or 50 per cent of them would have developed evidence of an attack of pellagra within some three to seven or eight months in the absence of the tomato juice or equivalent preventive, the absence of recognizable evidence of the disease in any of this group of patients is, in our judgment, conclusive evidence of the pellagra-preventive action of the tomato juice.

Clearly, our earlier idea that tomatoes lacked pellagra-preventive properties was erroneous and arose as the result of an unjust appraisal of the factor of quantity. When, as appears in the foregoing, the daily quantity is sufficiently liberal, the preventive action of tomatoes becomes unmistakable. What the minimum quantity must be it is impossible to state more definitely than that this would seem to fall somewhere between 170 grams (6 ounces) and 1,200 grams (40 ounces) of the juice of the canned vegetable.

CARROTS

In 1925, as a result of their study of the Chittenden-Underhill pellagralike syndrome in dogs, Underhill and Mendel (6) reported that carrots were found by them to be particularly effective in alleviating that syndrome when once initiated. Being strongly impressed with the possibility that this syndrome in the dog, identified by us as black tongue, might be the analogue of pellagra in man (7) (4), it seemed highly desirable to test the pellagra-preventive action of carrots in the human disease. Accordingly, we began a study of this vegetable early in September, 1925.

The carrots were peeled and sliced, then steamed until tender. They were then mashed, and one-half the day's ration, stirred into the other food, was served at the midday meal and the other half similarly served at supper. The daily ration was the equivalent of 453 grams (1 pound) of the dressed, raw vegetable. The composition of the carrot-supplemented diet thus served to the patients in this preventive study is shown in Table 2.

The study was continued for about nine months, or until early in June, 1926, when it was discontinued by reason of the development of pellagra in five of a small group of insane patients that had come under observation for preventive treatment with carrots.

Three of the five who developed the disease had been good eaters and had regularly consumed all or nearly all (approximately 90 per cent or more) of their ration of carrots. Both of the other two started with good appetites. During the first two or three months each consumed approximately 90 per cent of the daily offering of carrots; later their appetites declined so that the daily consumption of carrots gradually became reduced to 50 per cent or less prior to the appearance of the distinctive dermal lesions of the disease. Although not certain, we are nevertheless disposed to consider it highly probable that the decline in appetite in these two patients was a symptom of the approaching attack of pellagra and thus an early indication of the inadequacy of the carrots. It is to be noted, however, that although some 400 to 450 grams of carrots daily were clearly inadequate as a pellagra-preventive (in insane women weighing 46 to 63 kilos), the attacks of the disease appeared after somewhat longer periods (five to eight months) than our experience had led us to expect in this class of patients, among whom were some that had suffered several (as many as eight) previous attacks. A delaying or slightly protective effect is thus suggested but can not be vouched for on the basis of this experience.

RUTABAGAS

The indications of preventive activity afforded by our study of tomatoes and the possibility above referred to that carrots might be potent in the prevention of pellagra led us to undertake a study of

another common vegetable, the turnip, early in February, 1926. It was at first intended to work with the ordinary white turnip, but finding that an adequate supply of this vegetable was less certain than that of the rutabaga we decided to work with the latter vegetable.

The rutabagas were prepared by peeling and, after running through a food chopper, steaming for approximately two hours. The daily ration was the same as that of carrots, namely, the equivalent of 453 grams (1 pound) of the dressed, raw vegetable. One half was served at the midday meal and the other half at supper. The composition of the rutabaga-supplemented diet is shown in Table 3.

The study was continued for but about five months, being discontinued late in June, 1926, by reason of the failure of the rutabagas to prevent recurrences of the disease in some five or six patients (colored insane women weighing between 52 and 75 kilos) who, for periods of three or four months, had consumed, seemingly with relish, practically all of their allowance of this vegetable. The daily consumption of approximately 1 pound of rutabagas was unaccompanied by any evidence of a preventive action that we could recognize.

DISCUSSION

From the results presented in the foregoing, it would appear that tomatoes are effective as pellagra preventives, while both carrots and rutabagas lack this property. In view of the importance of the factor of quantity, however, so clearly brought out by our experience with tomatoes, this conclusion as it relates to carrots and rutabagas can not be accepted as entirely valid. For, although the test ration (1 pound), both of the carrots and of the rutabagas was, we believe, a very liberal one, it is readily conceivable that had it been larger a protective effect might have become evident just as it did in the case of the tomatoes. It would seem, nevertheless, that if carrots and rutabagas actually possess pellagra-preventive action this must be rather feeble.

It may be remarked in this connection that if, lacking a better practical standard, the preventive potency of a food is appraised, as is here attempted, on the basis of the preventive adequacy of the quantity conventionally considered as constituting an ordinary adult male's portion, the pellagra-preventive action of tomatoes, or more properly of canned tomatoes, must also be rated as of a feeble order.

The idea suggested by the work of Underhill and Mendel (6), on the Chittenden and Underhill syndrome (black tongue) in dogs, that carrots might be highly potent pellagra preventives would seem not to be borne out by the results of our study. Actually, however, it is difficult, or impossible, to form a sound judgment on this point, since Underhill and Mendel have not yet published the details needed

to permit of a valid comparison. We may remark, here, that our own studies (8) of carrots as black-tongue preventives indicate that this vegetable contains the black-tongue preventive factor, but in relatively small amounts, for we found that what we judge to be a considerable daily quantity must be ingested by the dog before the preventive action of the carrots becomes clearly manifest. Our work with carrots in the human disease is, therefore, not inconsistent with the results of our work in black tongue of dogs, nor, until we have more detailed information, is it to be regarded as necessarily inconsistent with that of Underhill and Mendel.

In a previous report (5) we presented evidence which indicates that the pellagra-preventive factor ("P-P") is very probably identical with the so-called growth-promoting essential theretofore included with the antineuritic or beriberi factor proper in the term "water-soluble vitamin B." If this is correct, as appears very probable, it follows that all foods heretofore proved to contain the so-called vitamin B contain the pellagra-preventive factor ("P-P"). Having due regard for the factor of quantity, the results of the studies herein reported are clearly in harmony or, at least, not inconsistent, with this view and thus tend to support and give it strength. In harmony with this view, it may here be remarked, are, with one exception, also the results of all our previously reported studies. The exception relates to our study of soy beans and cowpeas, both of which are regarded as rich in the so-called "vitamin B," but neither of which, it may be recalled, seemed in our study (4) to be adequate to prevent the recurrence of pellagra. We believe it very probable, however, that this, like our earlier experience with tomatoes and the studies of carrots and rutabagas reported above, is to be explained as due largely, if not entirely, to the ingestion of too small a quantity of these foods, even though the quantity actually consumed would ordinarily be regarded as a liberal one.

The demonstration of the pellagra-preventive action of tomatoes would seem to be of considerable practical importance, for this vegetable is easily grown nearly everywhere and may be had at relatively low cost at all seasons of the year. We would recommend its use in the treatment of active cases, in which it may be administered in the fresh, raw state, in the form of the juice, or as a soup. The daily quantity should be as liberal a one as is permitted by the digestive condition of the patient. A liter (1 quart) a day of the juice is not too much.

In endemic localities a more liberal use of tomatoes than now obtains, particularly during the late winter and spring, may well be encouraged as a measure tending to the prevention of the disease.

SUMMARY AND CONCLUSIONS

The expressed juice of canned tomatoes given in a daily quantity of approximately 1,200 grams (40 ounces) was found to possess well-marked pellagra-preventive action.

A daily supplement of cooked carrots equal to 453 grams (1 pound) of the dressed, raw vegetable failed as a pellagra preventive.

A daily supplement of cooked rutabagas equal to 453 grams (1 pound) of the dressed, raw vegetable failed as a pellagra preventive.

The failure of the carrots and of the rutabagas may have been due to the ingestion of a quantity which, although seemingly liberal, was too small; nevertheless, if carrots and rutabagas, as is probable, actually possess pellagra-preventive action, this must be rather feeble.

Although definitely demonstrated, the pellagra-preventive potency of canned tomatoes must be rated as of a feeble order.

Tomatoes are recommended for use in the treatment of active cases of pellagra, and it is suggested that a more liberal use of this vegetable, particularly in the late winter and spring, be encouraged as a preventive measure.

TABLE 1.—*Approximate composition* [1] *of the tomato juice-supplemented diet offered daily to each of a group of white female pellagrins, 1925–26*

(Total calories, 2,249)

Diet		Nutrients		
Articles of diet	Quantity	Protein	Fat	Carbohydrate
Basic:	*Grams*	*Grams*	*Grams*	*Grams*
Corn meal [2]	200	16.8	9.4	148.0
Wheat flour	84	9.6	.8	63.1
Cowpeas (*Vigna sinensis*) [3]	28	6.0	.4	17.0
Rice	14	1.1		11.1
Lard	44		44.0	
Vegetable salad oil (cottonseed)	28		28.0	
Sirup	90			63.9
Supplemental:				
Tomato juice [4]	1,200	8.3		
Cod-liver oil	14		14.0	
Calcium carbonate	3			
Dilute hydrochloric acid (U. S. P.) (90 drops).				
Sirup iodide of iron (U. S. P.) (2 drops).				
Total nutrients		41.8	96.6	303.1
Nutrients per 1,000 calories		18.6	43.0	134.7

[1] Factors used in computing are from Atwater and Bryant, Office of Experiment Stations, U. S. Department of Agriculture Bull. 28, 1906.
[2] Whole maize meal sifted in the kitchen and made into corn bread and mush.
[3] The variety known as the California black-eye pea.
[4] Expressed through a cloth by hand from a high grade of commercial canned tomatoes.

TABLE 2.—*Approximate composition* [1] *of the carrot-supplemented diet offered daily to each of a group of white female pellagrins, 1925–26*

(Total calories, 2,168)

Diet		Nutrients		
Articles of diet	Quantity	Protein	Fat	Carbohydrate
Basic:	*Grams*	*Grams*	*Grams*	*Grams*
Corn meal [2]	200	16.8	9.4	148.0
Wheat flour	84	9.6	.8	63.1
Cowpeas (*Vigna sinensis*) [3]	28	6.0	.4	17.0
Rice	14	1.1	.0	11.1
Lard	44		44.0	
Sirup	90			63.9
Supplemental:				
Carrots [4]	453	5.0	1.8	42.1
Cod-liver oil	14		14.0	
Calcium carbonate	3			
Dilute hydrochloric acid (U.S.P.) (90 drops).				
Sirup iodide of iron (U.S.P.) (2 drops).				
Total nutrients		38.5	70.4	345.2
Nutrients per 1,000 calories		17.7	32.4	159.0

[1] Factors as given by Atwater and Bryant, Office of Experiment Stations, U. S Department of Agriculture Bull. No. 28, 1906.
[2] Whole maize meal, sifted in the kitchen and made into corn bread and mush.
[3] The variety known as the California black-eye pea.
[4] Peeled, then ground and steamed for about 2 hours; one-half served at dinner and one-half at supper.

TABLE 3.—*Approximate composition* [1] *of the rutabaga-supplemented diet offered daily to each of a group of colored female pellagrins, 1926*

(Total calories, 2,140)

Diet		Nutrients		
Articles of diet	Quantity	Protein	Fat	Carbohydrate
Basic:	*Grams*	*Grams*	*Grams*	*Grams*
Corn meal [2]	200	16.8	9.4	148.0
Wheat flour	84	9.6	.8	63.1
Cowpeas (*Vigna sinensis*) [3]	28	6.0	.4	17.0
Rice	14	1.1		11.1
Lard	44		44.0	
Sirup	90			63.9
Supplemental:				
Rutabagas [4]	453	5.9	.9	38.5
Cod-liver oil	14		14.0	
Calcium carbonate	3			
Dilute hydrochloric acid (U.S.P.) (90 drops).				
Sirup iodide of iron (U.S.P.) (2 drops).				
Total nutrients		39.4	69.5	341.6
Nutrients per 1,000 calories		18.3	32.3	159.0

[1] Factors used in computing are from Atwater and Bryant, Office of Experiment Stations, U. S. Department of Agriculture Bull. No. 28, 1906.
[2] Whole maize meal, sifted in the kitchen and made into corn bread and mush.
[3] The variety known as the California black-eye pea.
[4] Peeled, then ground and steamed for about 2 hours; one-half served at dinner and one-half at supper.

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SOME CASES OF NONTUBERCULOUS GRANULOMATOUS LYMPHADENITIS IN MISSISSIPPI

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It is not within the province of this paper to review in detail the very considerable literature that has appeared under the titles of "Nontuberculous Granulomatous Lymphadenitis," "Subacute Lymphogranuloma of the Groin," "Subacute Inguinal Poradenitis," and other variants. A bulky paragraph could be made of the synonomy alone. The French literature, beginning in 1890 with a paper by Nélaton (1), is the most extensive, and papers have appeared in the Italian and Spanish languages as well. Gaté (2) has made an extensive review of the literature up to 1913, and Hansmann (3) published a thorough description of some cases appearing near Boston and included a summary of the French literature in his paper. Those who wish a more extensive review of the literature or description of the disease are referred to these authors. Only a brief summary of the salient characteristics of this disease will be given here.

There is a tumor in the inguino-crural region, involving one or more lymph nodes and tending to the formation of abscesses and chronic suppuration. In untreated cases the mass tends to persist for months. The appearance of the swelling is usually preceded by a sharp clinical attack characterized by headache, fever, and chills, the onset suggesting that of malaria, typhoid, or other acute infec-

tious disease. Often pain and tenderness occur in the groin. The prognosis is good.

The microscopic examination of the local lesion, cultures, and animal inoculation give no hint as to the etiology of the disease. The usual tests for the presence of the organisms of tuberculosis, syphilis, gonorrhea, soft chancre, or bubonic plague consistently fail.

In some cases small lesions have been found on the external genitalia, usually consisting of a small ulcer or other minor lesion on the prepuce or corona of the penis. These lesions are considered to be primary and evidence of a sexual origin of the disease, but they may be found on the skin of other parts of the body. The histology of these primary lesions is very similar to that in the involved glands. A few authors consider nontuberculous granulomatous lymphadenitis a modification of one of the common venereal diseases; but the great majority of writers consider the disease a pathologic entity, of infectious origin, etiology unknown. The port of entry may be through the sexual organs; but it is certainly not so in all cases.

Several authors point out the resemblance between nontuberculous granulomatous lymphadenitis and climatic bubo. The history, histopathology, negative character of laboratory findings, and prognosis of the two diseases have many points in common. It is further pointed out that both diseases tend to appear in warm climates and during the warm season of the year, characteristics certainly not universal. Comparison of the two diseases from descriptions given in the literature is difficult, for sometimes one is left in doubt as to which of the two conditions (if there are only two) the author's cases belong; but it would seem that the two diseases, if not identical, are closely related.

The majority of cases of nontuberculous granulomatous lymphadenitis have been reported from the Old World. Hansmann (3) has reported a series of four cases appearing near Boston, Mass. Under the name of "Subacute Inguinal Poradenitis" De Bellard (4) has reported an interesting series of 22 cases from Venezuela. All of these cases appeared in young Americans who had resided in Venezuela from two weeks to two years.

Cases of climatic bubo have been reported in this country. Smith (5) states that he has seen cases in Galveston, Tex., and in Memphis, Tenn. Several authors have described cases of climatic bubo seen in sailors who have returned from ports in the tropics. Phillips (6) records two such cases. The disease appeared in the patients three weeks after sexual intercourse in Panama; the onset was that of an acute infectious disease, and the gland enlargement developed secondarily. Guenther (7) described 35 cases observed among sailors appearing at the Tropeninstitut at Hamburg. Hanschell (8) has described 26 cases appearing at the Seaman's Hospital in London.

It is evident that this disease is often imported into temperate zones and may appear anywhere.

The history of one of the cases of nontuberculous granulomatous lymphadenitis seen by us in Mississippi is given here in detail.

The patient was N. F., colored, 47 years of age, married, farmer. About Christmas, 1925, he was attacked by chills, fever, night sweats, and pain in the back. The inguinal glands on both sides began to enlarge soon after the attack. These at first were tender, but soon were no longer so. The patient consulted Dr. L. H. Hightower, Itta Bena, Miss.

January 19, 1926, the patient was examined at Itta Bena by Doctor Hightower and the authors. The inguinal glands on both sides were then much enlarged, but not tender; the skin was unbroken. From one gland we aspirated 4 or 5 cubic centimeters of thick pus. The other glands apparently had not suppurated. There were no sores or scars on the penis. The patient was well enough to be about and at his work.

The pus of January 19 was negative in cultures. Smears were negative, stained by Gram, Leishman, and Ziehl-Neelsen. Thick blood smears were negative for malaria and *Filaria*. Blood serum, sent to Dr. Edward Francis, Hygienic Laboratory, Washington, D. C., was reported negative for tularaemia. Wassermann, negative.

February 22, 1926: Patient was seen at his home. He was able to be about his work. The glands were suppurating; the patient said he pressed out pus daily. Smears of pus obtained at this date were negative. From cultures we obtained *Staphylococcus albus*, probably a contaminant. Two guinea pigs were inoculated subcutaneously with this pus. The pigs were alive and well 52 days afterwards.

February 24, 1926: Operation under local anaesthesia, by Dr. L. B. Otken, Greenwood, Miss. The glands were removed from one side only. The largest was about 2 by 3 by 5 centimeters. Some of the glands had necrosed areas. One, at least, was broken down and suppurating. Two guinea pigs were inoculated with material from the glands—one pig subcutaneously, one intraperitoneally. The pigs were healthy 50 days later.

A small fissured abrasion on the corona penis was observed at the time of the operation.

March 28, 1926: The patient seen at his home. He was well and about his work. The operated side was wholly healed. The non-operated side was improving and giving the patient but little trouble. The patient was unwilling to have the rest of the diseased glands removed.

March 6, 1927: We examined the patient at Greenwood, Miss. He was perfectly well. A small, hard tumor was still present on the nonoperated side. The patient stated that about February 1, 1927,

he had an attack of illness with chills and other symptoms resembling those of his first attack; that there was some pain in the inguinal region, but no swelling of the glands. The illness was brief and quickly yielded to an "influenza" treatment. From all the evidence we could obtain, it seemed unlikely that this illness was a relapse of the original lymphadenitis or that the patient had ever suffered a recurrence of it.

Specimens of the glands excised from Patient N. F. were sent to Surg. G. C. Lake, of the Hygienic Laboratory, Washington, D. C., who kindly made sections of them. Doctor Lake reported that the histopathology of the glands did not correspond in every particular with the published descriptions of nontuberculous granulomatous lymphadenitis, but might represent an early stage of the disease. Sections were submitted to Dr. G. H. Hansmann, of the department of pathology, Medical School of the University of Iowa, who kindly examined them and made the following report:

> The sections that you sent me resemble the cases that I reported in that there is extensive necrosis surrounded by granulation tissue and endothelial cells. Some of the areas of necrosis have a definite stellate appearance. There is also quite extensive periadenitis, which would, no doubt, cause the discharge of necrotic material in the various abscesses by separate sinuses. It differs from the cases I reported in that the histology is not as near to the pathology of tuberculosis. Langerhans giant cells can not be found, and the arrangement of endothelial cells is not as definite, and, of course, there is no section of the local lesion. The histology of your cases is very like that described by Mueller and Justi [(9)]. Their cases are supposed to be climatic bubo. They hold that the condition is identical to nontuberculous granulomatous lymphadenitis. Of course, it is impossible to answer this question one way or the other, as the etiological factor is not known. It certainly is possible that they are identical.

Four cases very similar in character occurred in a small town about 5 miles from the farm of case N. F. All of the four occurred in the same immediate neighborhood, and all were attacked in the autumn of the same year—1925.

All were adults; three white, one negro; three males and one female. Two of the cases were husband and wife. In all patients the onset was rather sudden, with fever, chills, and headache, the attack resembling that of an acute infectious disease. In three cases, at least, malaria was suspected. The negro described his symptoms as those of an attack of "dumb ague." Later, typhoid was suspected in at least one case. Within two or three weeks after the onset of the disease, the inguinal lymph glands began to enlarge in all cases. The primary enlargement was unilateral in three cases and bilateral in one case. There was suppuration of the glands in all cases; the glands were sometimes tender and sometimes not. In all, the glands were either removed or drained, and all recovered after an illness of about three months. There was no relapse in any up to March,

1927, except in the negro, G. W., who, three months after his first attack, suffered a repetition of the clinical attack with enlargement of the glands on the side opposite to that at first affected.

All of these four cases were again seen at different times between February 14 and March 6, 1927. One patient stated that he still felt some discomfort in the inguinal region when he attempted heavy work, but was otherwise perfectly well. He still had a small tumor on the side where the glands had been drained only, not excised. All the other patients were perfectly well and none gave any history of relapse except the case G. W., above-described.

In three cases there was a history of local sores; in two cases on the penis—possibly primary lesions, but the exact description of which we were unable to obtain.

All gave negative Wassermann tests. The sera of three cases sent to Dr. Edward Francis at the Hygienic Laboratory, Washington, D. C., were reported to be negative for tularaemia.

A sixth case, negro adult, residing within a few miles of the patients just described, showed enlargement of both inguinal and axillary glands and gave a history suggesting nontuberculous granulomatous lymphadenitis. The patient stated that he had suffered recurrent attacks during the preceding seven years. Another case, an adult negro male, seen by us at the office of Doctor Hightower, Itta Bena, Miss., January 19, 1926, had an enlargement of the inguinal glands similar to that of patient N. F., but no satisfactory history of the case could be obtained, and the patient subsequently disappeared.

SUMMARY

Five, possibly seven, cases apparently of nontuberculous granulomatous lymphadenitis were found in Mississippi during the autumn or early winter of 1925. All were found in the same neighborhood, within a radius of perhaps 5 miles. No precise evidence of the origin of the infection could be obtained. There was no history in any of the cases of recent residence outside of Mississippi.

Our cases afford no new data in regard to treatment. Extirpation of the diseased glands, or drainage alone, was followed by recovery. In the case of N. F., the untreated side, as well as that from which the glands were removed, apparently healed. The treatment commonly recommended is the surgical extirpation of the affected glands. Emetine hydrochloride, tartar emetic, and iodine have also been recommended. Recently, Hanschell (8) has employed, successfully, the intravenous injections of T. A. B. vaccine in the treatment of climatic bubo.

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TYPHOID-FEVER OUTBREAK IN MONTREAL AND TYPHOID CARRIERS

The extensive outbreak of typhoid fever that occurred in Montreal, Canada, during the months of March and April is a matter of concern to all health officers. In order that all possible precautions may be taken to minimize the danger of typhoid infection being introduced into the United States by the large number of typhoid-fever carriers, that will result from this outbreak in Montreal, the Surgeon General issued a letter, a copy of which is printed below, addressed to all State health officers and others concerned.

The epidemic of typhoid fever at Montreal, Canada, which began about March 4, 1927, is now reported as being under control. The source of the infection has been attributed by the Canadian health authorities to a typhoid carrier in the person of the foreman of a large milk-Pasteurizing plant in Montreal.

Among the approximate number of 2,500 persons reported as having contracted typhoid fever in Montreal, there will be a number of carriers. An increase in carriers among the general population of the city will probably also occur through unrecognized cases.

In view of the fact that many persons from Montreal will visit the United States during the vacation season, and that some will seek employment in sum-

mer resorts, hotels, and recreation camps as food handlers and in related lines of occupation, it is desired to emphasize the unusual care which should be exercised by health officials, resort owners, and others in regard to sanitation and the examination of food handlers, if disastrous outbreaks of typhoid fever are to be averted.

It is urged that local health authorities in communities which receive summer visitors be alert to the necessity of establishing sanitary conditions and maintaining them on a high plane throughout the season. Sanitary methods of sewage disposal, adequate protection of water and milk supplies, and bacteriological examinations of food handlers are of paramount importance.

It is recommended that health officers immediately inform local governmental officials and citizens of the importance of adequate public-health protection under existing conditions and secure whatever funds may be necessary for the support and maintenance of adequate local health measures. Failure to present this matter at the present time is likely to result in sickness and loss of life among summer visitors and in heavy financial losses to local citizens. It is believed that the people of this country will be reassured by statements as to the sanitary safeguards which have been afforded for their protection, and that knowledge of such measures will be of definite advantage to communities and resorts which let the public know that precautions have been taken.

Typhoid vaccination is considered of importance as an individual means of protection for persons who are necessarily exposed to insanitary conditions, or who are to travel in places where sanitary conditions are questionable or unknown.

FATAL CASE OF ANTHRAX CONTRACTED FROM ORIENTAL SHIPMENT OF HIDES

In the Weekly Bulletin of the New York City Department of Health for March 26, 1927, Doctor Somerset, chief diagnostician of the department, reports a fatal case of anthrax contracted from a shipment of hides from the Orient. The following is taken from the report:

A stevedore working along the Brooklyn water front noticed, on December 31, 1926, a pimple over his right lower jaw. He cut this pimple while shaving on January 1, 1927. A hard lump at once began to form, while the sore rapidly became a dime-sized ulcer from which a bloody serum began to ooze. His face and neck and upper chest began to swell. On January 3 he went to a hospital. By that time the swelling was extreme, extending from the forehead to below the clavicle. The tissues of the neck were pushed out level with the face. A diagnosis of anthrax was made and serum was injected locally, intravenously. The local conditions responded at once; the sore became smaller and less angry in appearance. The edema diminished rapidly. On January 5 the patient looked much improved and felt much better, complaining only of feeling rather weak. The blood culture was positive for anthrax bacilli. The patient died on January 7, 1927.

Doctor Somerset states:

Formerly, when we regularly had 20 or more cases of anthrax yearly, the shaving brush was frequently a carrier of anthrax spores. Now that the department of health has eliminated the shaving brush as a spore carrier, the search for the source of contagion leads further afield. Circumstances, both of

time and of location of lesion, looked bad for the shaving brush in this case, but it was found to be free from infection.

The cargo on which the patient was working came from China and consisted of the skins, hides, hair, wool, and bristles of several herbivorous animals. These articles had, in the meantime, been delivered to their various destinations. They were traced, samples taken, and anthrax spores found. Some of these goods were disinfected, some turned over for disposal to the Federal Bureau of Animal Industry, and one lot of 35 bales was ordered returned to China.

It has been found extremely difficult to get rid of anthrax spores without destroying the goods which contain them.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Sexual sterilization law of Virginia upheld.—(United States Supreme Court; Buck *v.* Bell; decided May 2, 1927.) An act (chapter 394) of the Legislature of Virginia, approved March 20, 1924, provided for the sexual sterilization of inmates of certain State institutions who were afflicted with hereditary forms of insanity, idiocy, etc. The constitutionality of this law was attacked in a case where the sterilization of a feeble-minded woman had been ordered under it. The Virginia Supreme Court of Appeals upheld the act, and the case was carried to the United States Supreme Court, where the judgment of the State court was affirmed. The opinion of the Supreme Court of the United States, written by Justice Holmes, reads as follows:

This is a writ of error to review a judgment of the Supreme Court of Appeals of the State of Virginia, affirming a judgment of the circuit court of Amherst County, by which the defendant in error, the superintendent of the State Colony for Epileptics and Feeble Minded, was ordered to perform the operation of salpingectomy upon Carrie Buck, the plaintiff in error, for the purpose of making her sterile. (143 Va. 310.) The case comes here upon the contention that the statute authorizing the judgment is void under the fourteenth amendment as denying to the plaintiff in error due process of law and the equal protection of the laws.

Carrie Buck is a feeble-minded white woman who was committed to the State colony above mentioned in due form. She is the daughter of a feeble-minded mother in the same institution, and the mother of an illegitimate feeble-minded child. She was 18 years old at the time of the trial of her case in the circuit court, in the latter part of 1924. An act of Virginia approved March 20, 1924, recites that the health of the patient and the welfare of society may be promoted in certain cases by the sterilization of mental defectives, under careful safeguard, etc.; that the sterilization may be effected in males by vasectomy and in females by salpingectomy, without serious pain or substantial danger to life; that the Commonwealth is supporting in various institutions many defective persons who if now discharged would become a menace but if incapable of procreating might be discharged with safety and become self-supporting with benefit to themselves and to society; and that experience has shown that heredity plays an important part in the transmission of insanity, imbecility, etc. The statute then enacts that whenever the superintendent of certain institutions including the above-named State colony shall be of opinion

that it is for the best interests of the patients and of society that an inmate under his care should be sexually sterilized, he may have the operation performed upon any patient afflicted with hereditary forms of insanity, imbecility, etc., on complying with the very careful provisions by which the act protects the patients from possible abuse.

The superintendent first presents a petition to the special board of directors of his hospital or colony, stating the facts and the grounds for his opinion, verified by affidavit. Notice of the petition and of the time and place of the hearing in the institution is to be served upon the inmate, and also upon his guardian, and if there is no guardian the superintendent is to apply to the circuit court of the county to appoint one. If the inmate is a minor notice also is to be given to his parents if any with a copy of the petition. The board is to see to it that the inmate may attend the hearings if desired by him or his guardian. The evidence is all to be reduced to writing, and after the board has made its order for or against the operation the superintendent, or the inmate, or his guardian, may appeal to the circuit court of the county. The circuit court may consider the record of the board and the evidence before it and such other admissible evidence as may be offered, and may affirm, revise, or reverse the order of the board and enter such order as it deems just. Finally, any party may apply to the supreme court of appeals, which, if it grants the appeal, is to hear the case upon the record of the trial in the circuit court and may enter such order as it thinks the circuit court should have entered. There can be no doubt that so far as procedure is concerned the rights of the patient are most carefully considered, and as every step in this case was taken in scrupulous compliance with the statute and after months of observation, there is no doubt that in that respect the plaintiff in error has had due process of law.

The attack is not upon the procedure but upon the substantive law. It seems to be contended that in no circumstances could such an order be justified. It certainly is contended that the order can not be justified upon the existing grounds. The judgment finds the facts that have been recited and that Carrie Buck "is the probable potential parent of socially inadequate offspring, likewise afflicted, that she may be sexually sterilized without detriment to her general health and that her welfare and that of society will be promoted by her sterilization," and thereupon makes the order. In view of the general declarations of the legislature and the specific findings of the court obviously we can not say as matter of law that the grounds do not exist, and if they exist they justify the result. We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices, often not felt to be such by those concerned, in order to prevent our being swamped with incompetence. It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. Jacobson v. Massachusetts (197 U. S. 11). Three generations of imbeciles are enough.

But, it is said, however it might be if this reasoning were applied generally, it fails when it is confined to the small number who are in the institutions named and is not applied to the multitudes outside. It is the usual last resort of constitutional arguments to point out shortcomings of this sort. But the answer is that the law does all that is needed when it does all that it can, indicates a policy, applies it to all within the lines, and seeks to bring within the lines all similarly situated so far and so fast as its means allow. Of course, so far as the

operations enable those who otherwise must be kept confined to be returned to the world, and thus open the asylum to others, the equality aimed at will be more nearly reached.

Requirements as to adoption and recording of health regulations.—(Minnesota Supreme Court; State *v.* Trask, 211 N. W. 673; decided January 14, 1927.) The defendant was convicted of keeping horses on his premises in the city of St. Paul without first obtaining a permit from the city health department. The city ordinance involved provided that horses could not be kept on the same lot or premises with a dwelling house "except under such conditions as may be prescribed by the health officer." The health officer had orally adopted the uniform practice of approving an application to keep horses if there were no objections on the part of the neighbors and if the building was constructed with waterproof flooring and connected with the sewer. The defendant's building did not meet these requirements. The supreme court in reversing the judgment of conviction stated:

The accusation is failure to procure a permit to keep horses. But what law requires such a permit? No ordinance so commands. * * * The health officer may prescribe conditions under which horses may be kept, which means that he may make regulations consistent with the purpose of his office. Doubtless the regulation is directed at the manner of keeping horses. * * * The right to regulate does not include the right to prohibit. * * * The record fails to show any oral or written regulation commanding defendant to get a "permit" to keep his horses. The record shows that the health officer has orally adopted the uniform practice that, if there are no objections on the part of the immediate neighbors, and the building is constructed with waterproof flooring and connected with the sewer, he approves the application. It is said that such conduct is a permit on the part of the department to keep such animals. This is claimed to have been the custom for several years. * * * It does not appear that the so-called rule or practice ever had any publicity or that defendant knew of the same. Nor do we appreciate how a citizen could be expected to know of the existence of the same. The accusation in this case is based on a failure to comply with this traditional policy. Being penal in its nature and operation, the requirement should not rest in parol. Such a regulation is not a public law which is conclusively presumed to be known. To permit a criminal conviction to stand thereon would lead to opportunity for oppression. Our attention has not been called to any authority that permits such procedure. It would seem that a statute or ordinance is the written will of the enacting body. (26 Am. Eng. Enc. Law (2d ed.) 529.) It is equally important that a penal regulation be officially adopted, reduced to writing, and made a public record, so that the citizens may become informed thereof. (People *v.* Tait, 261 Ill. 197, 103 N. E. 750.)

Our conclusion is that (1) there is no requirement for a "permit," as charged in the complaint; and (2) that such "conditions" as the health officer may prescribe, pursuant to the ordinance, must be specified in writing, and that his oral regulations, of which the public are not advised, can not be the basis for a criminal prosecution.

Occupational diseases not compensable under workmen's compensation act.—(Delaware Superior Court; Hendrickson *v.* Continental Fibre

Co., 136 A. 375; decided December 13, 1926.) A tort action was brought by an employee against the employer to recover damages on account of certain diseases alleged to have resulted from the gradual and cumulative effect of certain chemicals used in the work. The defendant contended that the diseases were personal injuries cognizable under the workmen's compensation act, and that, such act being the exclusive remedy for matters cognizable by it, the common-law action could not be maintained. The compensation act covered such "personal injury" as was a "violence to the physical structure of the body" sustained "by accident" and "such disease or infection as naturally results directly therefrom when reasonably treated." The court decided that occupational diseases were not embraced within the terms of the compensation act and, therefore, were not compensable under it. The opinion stated:

We are holding, under the facts of this case, that a slow, gradual, idiopathic disease unaccompanied by and unrelated to any injury by accident, as we have construed such terms, is not embraced within the terms of our workmen's compensation law.

Wrongful revocation of milk dealer's permit.—(New York Supreme Court; In re Morris, 219 N. Y. S. 143; decided November 22, 1926.) At a meeting of the New York City board of health, to which all the wholesale milk dealers or jobbers were invited, the dealers were advised that "unfair competition, such as the solicitation or the taking away of another dealer's customer, by the giving of free milk, or a cash inducement, or the slashing of prices out of relation to the prevalent market price, would be looked upon with disfavor" by the department of health, "as it tended to precipitate these trade wars, in which the sale of adulterated or a low quality of milk generally followed." The dealers were also advised that any such unfair practices "would be treated as an act that tends to undermine the purity and wholesomeness of the milk supply" and "would be ground for revocation of the dealer's permit as a person unfit to sell and deliver milk in the city." A complaint was made to the department of health that Morris, the petitioner in this case, had violated the so-called order, and, after a hearing before the trial board of the department, his permit was revoked. In a mandamus proceeding to compel the issuance to him of a permit, the court held that he was entitled to the relief he sought, stating as follows in the opinion:

Assuming that petitioner did deliver milk free of charge to certain dealers, and made cash payments to other dealers for the purpose of procuring their business, he was not guilty, as far as I have been able to discover, of the commission of any illegal acts. If he can successfully sell pure milk of the required standard to the distributors at prices lower than the so-called market rate, other dealers can, and eventually must, do likewise, with a resulting reduction in cost to the consumer. In that way the public will receive the benefit derived

from open competition. It seems to me that a strict enforcement of the penal laws, with severe penalties for violation, will result in keeping milk and milk products pure and wholesome. If the possibility of adulteration, as a result of free competition, brings about a departmental policy which practically eliminates competition, then the effect is to deprive the public of the benefits which it has heretofore derived from the enforcement of section 340 of the general business law (as amended by laws of 1921, c. 712), commonly called the Donnelly Act. The purpose of this particular provision of our law "is to destroy monopolies in the manufacture, production, and sale in this State of commodities in common use, to prevent combinations in restraint of competition in the supply or price of such commodities, or in restraint of the free pursuit of any lawful business, trade, or occupation." (Matter of Davies, 168 N. Y. 89, 61 N. E. 118, 56 L. R. A. 855.)

* * * In this proceeding it appears that petitioner had not been convicted of an illegal practice, at least since the board of health issued the permit to him, and has conformed to the spirit and intent of the general business law by the breaking down of prices of milk in fair competition with others. * * *

Migratory livestock law declared void.—(Arizona Supreme Court; State *v.* Pugh, 252 P. 1018; decided February 7, 1927.) A State law (ch. 28) enacted at the special session of the legislature in 1922 related to migratory livestock. The said act contained provisions governing the inspection of such livestock for communicable diseases, etc. A provision of the State constitution read as follows:

The governor may call a special session, whenever in his judgment it is advisable. In calling such special session, the governor shall specify the subjects to be considered at such session, and at such session no laws shall be enacted except such as relate to the subjects mentioned in such call.

The supreme court declared the migratory livestock act void because the subject of such act was not among the subjects specified by the governor in calling the special session. The court said:

This provision, like all others of our constitution, is mandatory, no express words otherwise declaring (sec. 32, art. 2), and unless a law passed at a special session is related to some subject named in the governor's call, the legislature is without power to pass it. If the legislation is fairly germane to any of the subjects mentioned in the call, it will be sustained, but if foreign it is void. * * *

The governor's call names no subject bearing any relation whatever to the subject named in the title or body of chapter 28. * * *

To state the subject of chapter 28 and the subjects named in the governor's call is enough to demonstrate conclusively, that they are not related to each other, even remotely. Consequently, chapter 28 is void, and any conviction thereunder would likewise be void.

Piggery for disposal of city's garbage enjoined as nuisance.—(Michigan Supreme Court; Trowbridge et al. *v.* City of Lansing et al., 212 N. W. 73; decided February 4, 1927.) The city of Lansing, in order to dispose of garbage collected therein, established a piggery about 3 miles from the city, where the said garbage was fed to several hundred hogs. Persons who lived in the vicinity of the piggery brought suit, alleging that the piggery was a nuisance and seeking to have it abated. The lower court granted the relief asked for.

On appeal, the supreme court entered an order permitting the operation of the piggery to continue for several months so that correction of methods could be attempted. On the expiration of the period granted, the matter again came before the supreme court, and the decree of the lower court was affirmed.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Filter Plants with Low Cost of Construction and Operation. James H. Fuertes. Paper presented at Ninth Texas Water Works Short School, January 24–29, 1927, Dallas, Tex. (Abstract by Dave Morey.)

This paper deals with the filter plants at Steelton, Pa., Dallas, Tex., and Denver, Colo., all of which are characterized by low cost of construction and operation by reason of the low head required for their operation. By reason of utilizing the head between the settling basins and the filtered water reservoir for forcing the water, instead of a low lift pumping station, a considerable economy is effected in the operation of the filters. Anthracite coal is used as a filter medium and the total loss of head through the filter, when the filter is dirty, is about 3 feet.

A Dairy Infection with Streptococcus Epidemicus Davis. W. D. Frost and A. M. Carr, professor of agricultural bacteriology, University of Wisconsin, and health officer, Madison, Wis. *American Journal of Public Health*, vol. 17, No. 2, February, 1927, pp. 139–141. (Abstract by R. E. Irwin.)

In the latter part of April, 1926, attention was called to one of the very best dairies supplying milk to the city of Madison, Wis. For years the bacteria count of the milk of this dairy had been very low, usually only a few thousand per cubic centimeter, but suddenly the count jumped to over 150,000 per cubic centimeter. About the same time, several physicians reported to the health department a number of cases of septic sore throat, in their own families and among their patients, and stressed the fact that they were all users of the milk from this particular dairy. As soon as this state of affairs came to the attention of the health department, the dairyman was called in and questioned about conditions on the farm, and especially about mammitis among the cows. At this conference arrangements were made for Pasteurizing the milk and a veterinarian was ordered to examine the herd for symptoms of mammitis. Later in the day the veterinarian brought to the laboratories of the department of agricultural bacteriology of the University of Wisconsin three samples of milk from cows Nos. 1, 2, and 3. These cows were regarded by him as suffering from mammitis.

No. 2 revealed the enormous number of 36,000,000 bacteria per cubic centimeter, and these bacteria were apparently all hemolytic streptococci of the beta type. The same day that capsules were found, the third day after plating, representative samples of the entire raw milk supply of this dairy, which at this time included the milk of cow No. 2, were plated. One of these samples was found, in due course, to contain *Streptococcus epidemicus*. The next day cow No. 2 was removed from the herd and the milk from the remainder of the herd was examined, each cow's milk being plated separately. All these tests proved negative for *Streptococcus epidemicus* and the herd appeared to be clean.

After the removal of cow No. 2, the milk from the herd proved negative for *Streptococcus epidemicus* for several days. A positive result was then obtained and this lead to the reculturing of the milk from the individual cows, with the result that cow No. 8 was found positive. The milk from the herd then proved

negative for *Streptococcus epidemicus* for a period of nearly three months, which was as long as the observations were continued.

An attempt was made to locate the source of infection in the cows. Swabs were made from the nose and throat of each person in the dairy in question. Out of 10 persons examined, 2 yielded cultures of *Streptococcus epidemicus.* One of these two persons was one of the women in the house who never had any part in the handling of the milk and no doubt became infected from drinking the milk. The other person was the hired man whose chief duties were the care of the cows and milk. After he left the dairy, *Streptococcus epidemicus* was not found again in the milk.

Cows Nos. 2 and 3, infected with *Streptococcus epidemicus* from this dairy farm, were brought to the University of Wisconsin isolation barns, primarily for the purpose of determining how long this type of infection would persist. The infection did not appear in the milk from cow No. 2 after she was brought to the university. The organisms did not appear in the milk from cow No. 3 for three months, but then reappeared and have persisted in small numbers for two months, to date of the report.

In the conclusion it is stated that cows once infected with *Streptococcus epidemicus* are likely to remain sources of danger over long periods of time and probably should never be returned to the milking line.

Injunction Granted Against Infringement of Ornstein Chlorinating Patent. Anonymous pamphlet of 6 pages. (Abstract by W. Fowler.)

A suit for a preliminary injunction was brought against the village of Garden City by the Electric Bleaching Gas Co. and Wallace & Tiernan Co. (Inc.) in the United States District Court for the Eastern District of New York on the ground that the village was infringing a patent for a process of antisepticizing water issued to one Ornstein in 1915. The claims of the patent on which the action was based were the same as were involved in former actions which had resulted in the patent being held valid. One of the former actions had been against the Paradon Engineering Co. (Inc.), and the United States District Court for the Eastern District of New York had decided that the Ornstein patent was contributorily infringed by the apparatus manufactured by the defendant, the apparatus being the equivalent of patentee's disclosed means. The decree of the district court was affirmed by the United States Circuit Court of Appeals, Second Circuit, and a petition for a writ of certiorari was denied by the United States Supreme Court. The village opposed the granting of a preliminary injunction because, although it used the same character of chlorinating apparatus as was in question in the Paradon case, it contended that there had been added to such apparatus what was called a "Bull pot" and that by reason of this addition, if the Bull pot was kept filled with iron particles, it was not practicing the process of the Ornstein patent. The village contended that the chlorinating unit with the pot embodied the apparatus covered by a patent issued to one Bull, and that the said apparatus, when normally used, was adapted to and did practice the process covered by another patent issued to Bull. The purpose of the Bull process patent was to make ferric chlorine as a precipitant or coagulant by causing the chlorine-containing solution to pass upward in the receptacle through the comminuted iron, which is acted upon to produce an iron solution, which passes into the water to be purified and not to accomplish a treatment of the major flow with the free chlorine. The court in its opinion stated that "From all of the evidence it does not seem to me that defendant was using its apparatus to make ferric chlorine as a precipitant or coagulant, but was using it for the purpose of chlorination, by the process involved in the suit against Paradon Engineering Company, (Inc.), tried in this district." A preliminary injunction was granted the plaintiffs.

Earlier Determination of Bacterium Colon. C. J. Lauter, chief chemist water filtration plant, Washington, D. C. *Journal American Water Works Association*, vol. 16, No. 5, November, 1926, pp. 625–630. (Abstract by C. T. Butterfield.)

The author presents data and a discussion reviewing to date the research work carried on at his plant on the brilliant green bile medium, originally proposed by Hale of New York.

His results indicate that the colon index obtained, by calling all presumptive brilliant green bile tubes positive which show gas at the end of 72 hours' incubation, agrees quite closely with the index obtained by the Standard Methods "Completed Test." When confirmatory tests were made on the brilliant green bile gas formers approximately 20 per cent failed to confirm. The author also reports excellent agreement when brilliant green bile lactose broth was used as a confirmatory medium in place of eosin methylen blue or indo.

A Cemented Gravel Slab-Vitrified Clay Pipe Distribution System for Rapid Sand Filters. Harry N. Jenks, Associate professor of sanitary engineering, Iowa State College. *Journal of the American Water Works Association*, vol. 16, No. 5, November, 1926, pp. 542–581. (Abstract by Dana E. Kepner.)

Realizing a need for simplification in filter underdrains, the author while superintendent of the Sacramento, Calif., filter plant, designed and constructed first an experimental unit and later a full-size filter bottom of this unique and promising type. It consists of a collecting system of 3-inch vitrified-clay, bell and spigot sewer pipe, perforated with ½-inch holes, spaced 6 inches on centers. This is laid, perforations down, in lines 16 inches apart, on the concrete floor of the filter basin, and over it a porous cemented gravel slab is poured. Rock salt, laid directly under the pipes before pouring the slab and later dissolved, forms a clear waterway around the perforations. The slab is 8 inches thich and is made with the following proportions: 1 part cement, 9 parts gravel, having an effective size of 2.1 millimeter and a uniformity coefficient of 1.36, and 1 part water. The filter sand is placed on top of this slab, no supporting gravel being necessary.

Among the advantages of this type of underdrain are: Exceedingly even distribution of wash water; low first cost, amounting to 45.3 cents per square foot of filter area compared with $1.10 for a typical perforated pipe and graded gravel underdrain system; and saving in depth of basin permitted by the omission of gravel generally used to support the filter sand.

Experience with this filter bottom for several months indicated disintegration of the cemented gravel slab, probably due to the corrosiveness of the water. Consequently an asphalt gravel slab was prepared. This has some advantages over the cemented slab, such as ready availability and greater durability in corrosive waters. Its cost is slightly higher, however, and complete test data are not yet available.

Organization of the Public Health Services of Czechoslovakia. Dr. Hynek J. Pelc. Bulletin C. H. 268, League of Nations, December, 1924. 76 pages. (Abstract by I. W. Mendelsohn.)

Administration.—The Ministry of Public Health and Physical Training was organized soon after October, 1918, as one of the 14 ministries of the Czechoslovak Republic. It comprises departments of administration; sanitary policy and pharmacies; hospitals; institutes; general public health; industrial and commercial hygiene—hygiene in connection with labor; physical training and the child; legal questions; and an accountancy section and certain auxiliary offices. Certain specialists (medical, legal, and engineering) are attached to the heads of departments.

Of interest is the program for the establishment, by the Ministry, of a State Institute of Hygiene, through the assistance of the International Health Board.

This is to be a central public-health laboratory, a training college for medical officers and sanitary personnel, and a research institute. The section for hygiene research of the institute will include school hygiene, an experimental station for water purification and sewage disposal, and subsections for industrial hygiene and housing.

There is a corps of medical officers in the employ of the ministry who are in the central office, and the provincial and district health bureaus. It is contemplated to have the health officers of local communities included in this corps.

Housing.—The building regulations now in force no longer meet modern requirements. A new building law is in preparation by the Ministry of Public Works. Some of its provisions include: (1) Submission for Government approval of plans for extension in communities of 2,000 or over; (2) reconstruction of bad housing quarters; (3) provisions for water-supply, sewage-disposal, and refuse-disposal systems and housing inspection in communities; (4) adoption of a one-family type of house. State grants in aid for the construction of dwelling houses are provided for by the Ministry of Social Welfare, while the Ministry of Health will deal with the sanitary aspect of the housing problem.

Industrial hygiene.—There are 25 factory-inspection boards under the Ministry of Social Welfare, with 73 industrial inspectors. There are also special boards for the building industry and navigation. Inspection of agricultural undertakings is carried out by the Ministry of Agriculture.

The duties of the industrial inspectors include: (1) Supervision of sanitation in factories and dwelling-houses of workmen; (2) supervision over employment of minors, women, and children, and working hours; (3) inspection of factory regulations.

An eight-hour law was enacted on December 19, 1918. According to this law, children up to 18 years of age may not be employed in factories.

Water supply.—In accordance with an agreement between the three ministries, the Ministry of Public Works deals with the water supply of larger towns, the Ministry of Agriculture deals only with the water supply of rural communities, and the Ministry of Health exercises a certain measure of control in both cases by giving or refusing grants in aid for the proposed projects. Inspection of public water-supply systems is carried out by the district health officers, who report to the provincial administration.

According to a recent investigation of the Ministry of Health, there were 1,678 central water-supply systems, with 1,099 public and 516 private.

Sewage disposal.—The Ministry of Public Works and the Ministry of Health are responsible for the building of sewage-disposal plants according to the same basis as for water-supply systems. A recent investigation by the Ministry of Health showed a total of 610 sewage-disposal systems, of which 454 are storm water, 131 combined, and 25 domestic sewage with treatment plants.

Town Planning and Town Development. S. D. Adshead. 204 pp., 8vo. Methuen & Co., London, 1926. Abstract by E. W. in the *Journal of The Royal Sanitary Institute*, vol. 47, No. 9, March, 1927, p. 104.

The art of town planning is at present but little understood by the man in the street, and any work which will educate the public to appreciate the importance of this subject is of value.

The writer of the above book is well known as a professor of town planning at the London University, and therefore any work of which he is the author should prove of value.

The book is essentially original in the way it is written, and through the excellent illustrations of seaside health resorts and aerial photographs not only the student but all those seeking information are enabled to appreciate the real

value of good planning. In the illustrations, such photographs of Southend, Folkestone, Southport, and Port Sunlight are especially attractive, whilst there are many other photographs and sketches illustrative of planning and typical features which the town planner must consider if he is to prove his value and create ideal conditions for posterity.

There is much that will appeal to the student of town planning in the 14 chapters which are contained in the book, and its price brings it within the range of most students as well as those others who may be interested.

The work must not be considered a complete textbook by any means, but in the preface it is suggested that it is the first of a series of primers dealing with the social, economic, and administrative aspects only, and as such it is one which not only gives a great deal of useful information but is most interesting to read.

The Law of Town Planning. A. Safford and Graham Oliver. 272 pp., 8vo. Hadden, Best & Co. (Ltd.), London, 1925. Abstract by E. W. in the *Journal of The Royal Sanitary Institute,* vol. 47, No. 9, March, 1927, p. 105.

The law of town planning in its modern form commenced with the 1909 act of Parliament, but we do not in any way suggest that the subject was in its infancy. Town planning has practically existed from the earliest days where numbers of persons have taken up their abode on one spot, but it is only the man of foresight and vision, and those with powerful driving force, who have anticipated the requirements of the future and endeavored to prepare for same.

During the past 20 years the law of town planning has gradually evolved from the public health acts, and the regulations and by-laws made thereunder, and in 1925 the consolidating act became law. Many private towns and cities, however, have important clauses bearing on this subject in their private acts of Parliament, and it is well for this country that such has been the case.

The authors of the above work have endeavored to collect much information on the legal side which, in itself, is of the utmost importance; and have added a number of cases bearing on the law of town planning. They have also included tables of statutes and numerous appendices giving the statutory rules and orders, model forms, memoranda, and model clauses; but the actual book, which comprises 12 chapters, summarizes the work of the local authority from the inception of the scheme to its confirmation so far as the legal work is concerned.

It is probably the most useful work of this kind available, and every town clerk and borough surveyor should find useful information therein if engaged in the preparation of a town planning scheme.

Whilst it is mainly a compilation of information, it is well arranged and the information contained is bound to be of use when framing a scheme.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for September, 1926

Reports for the month of September, 1926, were received from 26 institutions for the care of the feeble-minded.

The following tables give a summary and analysis of the reports:

Movement of patient population in 26 institutions for the feeble-minded, September, 1926

	Male	Female	Total
Number of institutions included:			
Public			25
Private			1
Total			26
Patients on books Sept. 1, 1926:			
In institutions	11,659	11,509	23,168
On temporary leave	2,218	1,699	3,917
Total	13,877	13,208	27,085
Admitted during September:			
First admissions	188	145	333
Readmissions	8	7	15
Admitted by transfer	36	55	91
Total received during September	232	207	439
Total on books during month	14,109	13,415	27,524
Discharged or placed on indefinite parole during September	48	30	78
Transferred	37	56	93
Died during September	35	19	54
Total discharged, transferred, and died	120	105	225
Patients on books Sept. 30, 1926:			
In institutions	11,996	11,743	23,739
On temporary leave	1,993	1,567	3,560
Total	13,989	13,310	27,299

Analysis of movement of patient population of 26 institutions for the feeble-minded, September, 1926

	Male	Female	Total
Per cent increase in number of patients during September:			
Total	0.81	0.77	0.79
In institutions	2.89	2.03	2.46
On temporary leave (decrease)	10.14	7.77	9.11
Per cent of total patients absent on temporary leave:			
Sept. 1	15.98	12.86	14.46
Sept. 30	14.25	11.77	13.04
Per cent of total admissions (excluding transfer) which were:			
First admissions	95.92	95.39	95.69
Readmissions	4.08	4.61	4.31
Per cent of total patients discharged during September (based on average number for month)	0.34	0.23	0.29
Male patients for 1,000 females, Sept. 30			1,051
Deaths per 1,000 under treatment (annual basis)	30.18	17.23	23.87

DEATHS DURING WEEK ENDED APRIL 30, 1927

Summary of information received by telegraph from industrial-insurance companies for week ended April 30, 1927, and corresponding week of 1926. (From the Weekly Health Index, May 5, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 30, 1927	Corresponding week 1926
Policies in force	67,499,046	64,211,097
Number of death claims	13,807	15,378
Death claims per 1,000 policies in force, annual rate	10.7	12.5

Deaths from all causes in certain large cities of the United States during the week ended April 30, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 5, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Apr. 30, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 30, 1927 [2]
	Total deaths	Death rate [1]		Week ended Apr. 30, 1927	Corresponding week 1926	
Total (69 cities)	7,722	13.5	[3] 14.1	824	[3] 941	[4] 68
Akron	33			7	11	75
Albany [5]	45	19.6	14.0	2	1	42
Atlanta	74			8	8	
White	43			2	6	
Colored	31	(6)		6	2	
Baltimore [5]	224	14.3	16.3	24	29	74
White	170		14.7	15	22	58
Colored	54	(6)	25.4	9	7	140
Birmingham	65	15.8	17.5	6	12	
White	29		11.4	5	6	
Colored	36	(6)	27.0	1	6	
Boston	246	16.2	15.6	26	36	73
Bridgeport	30			3	4	56
Buffalo	146	13.8	15.3	19	27	80
Cambridge	35	14.7	12.8	4	2	71
Camden	35	13.7	10.7	5	4	86
Canton	27	12.5	14.7	3	8	71
Chicago [5]	760	12.8	12.4	76	67	66
Cincinnati	138	17.5	21.1	18	22	112
Cleveland	192	10.2	12.9	27	35	71
Columbus	87	15.6	15.2	6	7	56
Dallas	39	9.7	13.1	5	7	
White	32		10.7	5	6	
Colored	7	(6)	29.0	0	1	
Dayton	41	11.9	14.4	4	3	66
Denver	87	15.6	15.6	10	12	
Des Moines	40	14.0	10.4	4	0	67
Detroit	338	13.2	13.2	47	65	74
Duluth	22	10.0	15.7	3	1	65
El Paso	36	16.5	20.1	5	10	
Erie	34			5	4	98
Fall River [5]	28	11.0	12.7	5	9	88
Flint	29	10.6	10.7	5	6	82
Fort Worth	33	10.5	15.1	2	7	
White	25		14.2	2	7	
Colored	8	(6)	22.0	0	0	
Grand Rapids	23	7.5	11.4	3	7	44
Houston	57			5	7	
White	36			4	6	
Colored	21	(6)		1	1	
Indianapolis	115	16.0	15.3	14	12	110
White	101		13.1	12	10	108
Colored	14	(6)	32.0	2	2	122
Jersey City	62	10.0	13.0	8	8	60
Kansas City, Kans.	27	12.0	10.7	2	2	39
White	20		9.2	2	0	45
Colored	7	(6)	17.8	0	2	0
Kansas City, Mo.	103	14.0	16.7	9	14	
Knoxville	35	17.9		6		
White	31			4		
Colored	4	(6)		2		
Los Angeles	271			26	18	74
Louisville	74	12.1	16.6	3	6	26
White	53		15.0	1	5	10
Colored	21	(6)	25.5	2	1	140
Lowell	33	15.6	15.6	6	4	116
Lynn	26	12.9	10.0	6	3	159

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 68 cities.
[4] Data for 64 cities.
[5] Deaths for week ended Friday, Apr. 29, 1927.
[6] In the cites for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 30, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Apr. 30, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Apr. 30, 1927
	Total deaths	Death rate		Week ended Apr. 30, 1927	Corresponding week 1926	
Memphis	62	18.1	16.5	6	2	----------
White	27	----------	12.3	1	1	----------
Colored	35	(6)	24.0	5	1	----------
Milwaukee	127	12.6	11.6	19	23	89
Minneapolis	90	11.7	13.3	6	9	34
Nashville [5]	50	18.9	17.9	6	3	----------
White	27	----------	14.4	3	2	----------
Colored	23	(6)	26.7	3	1	----------
New Bedford	33	14.4	15.7	1	5	17
New Haven	47	13.2	14.3	3	5	42
New Orleans	152	18.7	14.3	25	8	----------
White	79	----------	10.8	12	2	----------
Colored	73	(6)	24.4	13	6	----------
New York	1,490	13.1	13.5	149	195	62
Bronx Borough	164	9.2	8.8	14	11	45
Brooklyn Borough	524	12.0	11.5	64	65	66
Manhattan Borough	620	17.8	19.5	65	94	76
Queens Borough	131	8.4	9.7	6	21	23
Richmond Borough	60	21.3	16.8	0	4	0
Newark, N. J	119	13.3	10.0	15	11	74
Norfolk	38	11.1	10.5	5	4	101
White	16	----------	8.0	1	1	33
Colored	22	(6)	14.9	4	3	212
Oakland	50	9.8	10.2	2	4	23
Oklahoma City	31	----------	----------	2	2	----------
Omaha	60	14.3	12.6	6	3	67
Paterson	44	15.9	17.1	4	0	71
Philadelphia	555	14.2	14.9	57	62	76
Pittsburgh	190	15.4	15.1	29	29	70
Portland, Oreg	76	----------	----------	3	2	32
Providence	58	10.8	11.9	12	11	102
Richmond	60	16.3	17.1	4	10	53
White	36	(6)	13.6	4	6	81
Colored	24	----------	25.6	0	4	0
Rochester	76	12.2	14.1	8	9	67
St. Louis	205	12.7	16.3	13	20	----------
St. Paul	62	12.9	12.0	5	2	45
Salt Lake City [5]	40	15.3	9.8	2	3	30
San Antonio	61	15.1	14.8	17	13	----------
San Diego	44	20.0	21.3	0	3	0
San Francisco	172	15.6	15.5	7	5	44
Schenectady	17	9.5	12.9	1	5	30
Seattle	69	----------	----------	9	3	94
Somerville	23	11.8	17.2	2	4	72
Spokane	33	15.8	17.7	2	1	50
Springfield, Mass	44	15.6	15.1	4	5	62
Syracuse	45	11.9	14.9	6	6	77
Tacoma	24	11.7	12.3	1	0	24
Toledo	80	13.7	16.1	7	10	67
Trenton	41	15.6	18.3	7	3	122
Utica	25	12.7	19.7	1	3	23
Washington, D. C	141	13.6	13.5	18	17	104
White	94	----------	10.8	7	10	59
Colored	47	(6)	21.4	11	7	202
Waterbury	24	----------	----------	2	6	47
Wilmington, Del	34	14.1	15.1	1	5	25
Worcester	49	13.1	19.7	7	10	84
Yonkers	32	14.0	7.8	2	3	45
Youngstown	40	12.3	12.6	10	4	140

[5] Deaths for week ended Friday, Apr. 29, 1927.

[6] In the cites for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended May 7, 1927

DIPHTHERIA	Cases
Alabama	18
Arkansas	2
California	119
Colorado	9
Connecticut	22
Delaware	1
Florida	12
Idaho	5
Illinois	112
Indiana	21
Iowa [1]	22
Kansas	8
Louisiana	21
Maine	7
Maryland [1]	42
Massachusetts	81
Michigan	97
Minnesota	28
Mississippi	7
Missouri	49
Montana	2
New Jersey	113
New Mexico	2
New York [2]	92
North Carolina	18
Oklahoma [3]	11
Oregon	14
Pennsylvania	174
Rhode Island	3
South Carolina	18
South Dakota	6
Tennessee	11
Utah [1]	12
Washington	17
West Virginia	15
Wisconsin	20
Wyoming	2

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.

INFLUENZA	Cases
Alabama	62
Arkansas	48
California	33
Connecticut	4
Florida	16
Illinois	56
Indiana	29
Kansas	7
Louisiana	19
Maine	6
Maryland [1]	27
Massachusetts	12
Michigan	4
Minnesota	2
New Jersey	14
New Mexico	1
Oklahoma [3]	58
Oregon	20
South Carolina	722
South Dakota	2
Tennessee	86
West Virginia	21
Wisconsin	60
Wyoming	3

MEASLES	Cases
Alabama	248
Arizona	46
Arkansas	140
California	2,069
Colorado	273
Connecticut	51
Delaware	11
Florida	86
Illinois	1,384
Indiana	182
Iowa [1]	313

MEASLES—continued

	Cases
Kansas	1,154
Louisiana	54
Maine	116
Maryland [1]	28
Massachusetts	373
Michigan	316
Minnesota	147
Montana	43
New Jersey	80
New Mexico	63
New York [2]	691
North Carolina	1,503
Oklahoma [3]	341
Oregon	341
Pennsylvania	667
Rhode Island	2
South Carolina	43
South Dakota	103
Tennessee	90
Utah [1]	41
Vermont	215
Washington	532
West Virginia	173
Wisconsin	605
Wyoming	111

MENINGOCOCCUS MENINGITIS

California	3
Colorado	4
Connecticut	1
Florida	5
Idaho	1
Illinois	10
Iowa [1]	1
Kansas	4
Massachusetts	2
Minnesota	4
Mississippi	1
Montana	9
New Jersey	3
New York [2]	2
Oregon	2
Pennsylvania	4
Tennessee	1
Washington	3
Wisconsin	2

POLIOMYELITIS

Arizona	1
Arkansas	1
California	4
Kansas	1
Louisiana	1
Massachusetts	2
Minnesota	1
New York [2]	2
South Carolina	2
Washington	1

SCARLET FEVER

Alabama	11
Arizona	11
Arkansas	7
California	178

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.

SCARLET FEVER—continued

	Cases
Colorado	107
Connecticut	103
Delaware	9
Florida	12
Idaho	12
Illinois	260
Indiana	141
Iowa [1]	36
Kansas	98
Louisiana	10
Maine	35
Maryland [1]	71
Massachusetts	469
Michigan	293
Minnesota	172
Mississippi	12
Missouri	77
Montana	111
New Jersey	372
New Mexico	4
New York [2]	301
North Carolina	25
Oklahoma [3]	27
Oregon	19
Pennsylvania	500
Rhode Island	14
South Carolina	7
South Dakota	27
Tennessee	28
Utah [1]	25
Vermont	6
Washington	51
West Virginia	31
Wisconsin	134
Wyoming	19

SMALLPOX

Alabama	27
Arkansas	2
California	23
Florida	30
Idaho	3
Illinois	53
Indiana	105
Iowa [1]	5
Kansas	32
Louisiana	4
Michigan	56
Minnesota	2
Missouri	24
Montana	8
New Mexico	1
New York [2]	6
North Carolina	69
Oklahoma [3]	53
Oregon	17
South Carolina	17
South Dakota	1
Tennessee	16
Utah [1]	4
Washington	49
West Virginia	47
Wisconsin	11
Wyoming	2

TYPHOID FEVER	Cases
Alabama	17
Arizona	1
Arkansas	11
California	5
Colorado	33
Connecticut	1
Delaware	2
Florida	7
Illinois	9
Indiana	1
Iowa [1]	1
Kansas	3
Louisiana	11
Maine	1
Maryland [1]	5
Massachusetts	7

TYPHOID FEVER—continued	Cases
Michigan	5
Minnesota	2
Mississippi	9
Missouri	10
Montana	1
New Jersey	6
New York [2]	6
North Carolina	9
Oklahoma [3]	10
Oregon	4
Pennsylvania	15
South Carolina	15
Tennessee	17
Washington	3
West Virginia	7
Wisconsin	1

Reports for Week Ended April 30, 1927

DISTRICT OF COLUMBIA	Cases
Chicken pox	63
Diphtheria	16
Influenza	2
Measles	6
Pneumonia	23
Scarlet fever	29
Tuberculosis	29
Whooping cough	5

NORTH DAKOTA	Cases
Chicken pox	6
Diphtheria	2
Measles	73
Mumps	3
Pneumonia	10

NORTH DAKOTA—continued	Cases
Scarlet fever	69
Smallpox	12
Tuberculosis	4
Typhoid fever	2

SOUTH DAKOTA	Cases
Cerebrospinal meningitis	1
Chicken pox	12
Influenza	9
Measles	219
Mumps	8
Pneumonia	5
Scarlet fever	57
Smallpox	7
Tuberculosis	3
Whooping cough	7

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1926										
New Mexico	0	8	2	2	9	1	0	119	0	40
December, 1926										
New Mexico	1	21	1		49		1	110	0	15
March, 1927										
Arizona	0	10	10		271	1	0	92	0	9
Arkansas	1	28	399	155	542	42	1	65	19	45
Montana	29	24	8		25		0	304	86	5
Pennsylvania	9	883		2	3, 619		3	2, 999	2	70
South Dakota	0	17	34		1, 168		0	416	73	4
Virginia	5	115	8, 089	68	3, 533	19	3	186	80	32

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.

November, 1926

	Cases
New Mexico:	
Chicken pox	13
Conjunctivitis	1
German measles	9
Mumps	3
Vincent's angina	2
Whooping cough	22

December, 1926

	Cases
New Mexico:	
Chicken pox	50
Dysentery	5
Conjunctivitis	1
German measles	10
Milk sickness	9
Mumps	10
Septic sore throat	1
Trachoma	1
Vincent's angina	2
Whooping cough	10

March, 1927

	Cases
Actinomycosis:	
South Dakota	2
Anthrax:	
Pennsylvania	1
Chicken pox.	
Arizona	107
Arkansas	170
Montana	126
Pennsylvania	3,419
South Dakota	73
Virginia	897
Conjunctivitis:	
Montana	1
Dysentery:	
Virginia	40
German measles:	
Montana	7
Pennsylvania	687

March, 1927—Continued

	Cases
Hookworm disease:	
Arkansas	1
Virginia	2
Impetigo contagiosa:	
Pennsylvania	34
Leprosy:	
Arizona	1
Lethargic encephalitis:	
Pennsylvania	7
Malta fever:	
Arizona	1
Mumps:	
Arizona	13
Arkansas	160
Montana	96
Pennsylvania	2,623
South Dakota	32
Ophthalmia neonatorum:	
Arkansas	1
Pennsylvania	27
Puerperal fever:	
Pennsylvania	2
Rabies in man:	
Pennsylvania	3
Tetanus:	
Pennsylvania	6
Trachoma:	
Arizona	3
Arkansas	6
Pennsylvania	4
Trichinosis:	
Pennsylvania	6
Whooping cough:	
Arizona	6
Arkansas	277
Montana	8
Pennsylvania	1,178
South Dakota	54
Virginia	2,134

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the 95 cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 23, 1927, and April 24, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,766	1,151	
101 cities	1,066	689	856
Measles:			
41 States	14,490	21,920	
101 cities	4,661	10,459	

Weeks ended April 23, 1927, and April 24, 1926—Continued

	1927	1926	Estimated expectancy
Cases reported—Continued			
Poliomyelitis:			
42 States	7	11	
Scarlet fever:			
42 States	4,663	4,118	
101 cities	2,154	1,655	1,155
Smallpox:			
42 States	767	878	
101 cities	197	181	128
Typhoid fever:			
42 States	233	186	
101 cities	43	45	47
Deaths reported			
Influenza and pneumonia:			
95 cities	1,029	1,364	
Smallpox:			
95 cities	0	4	
Omaha	0	1	
Los Angeles	0	2	
San Francisco	0	1	

City reports for week ended April 23, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid ever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	4	1	0	0	0	2	0	4
New Hampshire:									
Concord	22,546	0	0	0	0	1	8	0	0
Manchester	83,097	0	2	0	0	1	0	0	1
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	2
Burlington	24,089	5	0	0	0	0	7	8	1
Massachusetts:									
Boston	779,620	42	53	29	4	1	93	94	25
Fall River	128,993	3	3	1	0	1	1	3	3
Springfield	142,065	4	2	2	0	0	4	24	5
Worcester	190,757	12	4	4	0	1	5	4	3
Rhode Island:									
Pawtucket	69,760	2	1	0	0	0	0	1	0
Providence	267,918	0	9	7	0	1	0	0	1
Connecticut:									
Bridgeport	(1)	1	5	6	0	0	6	4	2
Hartford	160,197	2	6	8	0	0	3	3	8
New Haven	178,927	8	3	1	0	0	5	10	12

[1] No estimate made.

City reports for week ended April 23, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	14	9	7		1	5	15	16
New York	5,873,356	271	216	410	37	18	61	332	228
Rochester	316,786	8	8	0		0	8	5	12
Syracuse	182,003	12	6	0		0	80	2	6
New Jersey:									
Camden	128,642	1	4	17	6	2	1	1	7
Newark	452,513	60	15	8	7	1	3	53	17
Trenton	132,020	11	3	5	4	0	0	1	5
Pennsylvania:									
Philadelphia	1,979,364	83	71	77		15	24	167	73
Pittsburgh	631,563	49	17	24		4	67	8	37
Reading	112,707	19	3	0		0	46	53	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	14	7	5	0	3	1	16	14
Cleveland	936,485	80	22	46	1	0	5	74	23
Columbus	279,836	5	3	2	0	3	3	1	11
Toledo	287,380	65	3	2	1	1	22	7	10
Indiana:									
Fort Wayne	97,846	2	2	4	0	0	23	0	1
Indianapolis	358,819	46	5	5	0	0	10	26	19
South Bend	80,091	0	1	1	0	0	8	0	1
Terre Haute	71,071	1	0	0	0	0	38	0	1
Illinois:									
Chicago	2,995,239	85	78	70	18	6	870	158	73
Peoria	81,564	7	0	0	0	1	20	2	0
Springfield	63,923	4	1	3	1	1	11	0	1
Michigan:									
Detroit	1,245,824	98	45	43	8	3	16	144	42
Flint	130,316	27	2	3	0	0	16	0	2
Grand Rapids	153,698	2	4	0	1	1	3	0	3
Wisconsin:									
Kenosha	50,891	8	1	0	1	0	46	47	0
Madison	46,385	5	1	0	0	0	16	2	0
Milwaukee	509,192	87	11	13	0	0	132	88	10
Racine	67,707	6	1	2	0	0	11	23	1
Superior	39,671	0	1	0	0	0	2	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	15	1	0	0	0	50	2	3
Minneapolis	425,435	76	15	22	0	2	13	0	13
St. Paul	246,001	39	15	1	0	2	29	0	12
Iowa:									
Davenport	52,469	0	0	1	0		2	3	
Des Moines	141,441	0	2	0	0		8	0	4
Sioux City	76,411	10	1	1	0		53	12	
Waterloo	36,771	1	0	1	0		24	0	
Missouri:									
Kansas City	367,481	21	6	4	1	3	83	7	9
St. Joseph	78,342	4	1	0	0	0	62	0	3
St. Louis	821,543	29	39	40	1	0	51	78	
North Dakota:									
Fargo	26,403	0	0	0	0	1	28	7	1
Grand Forks	14,811	0	0	0	0		0	0	
South Dakota:									
Aberdeen	15,036	6	0	0	0		9	1	
Sioux Falls	30,127	1	0	0	0		11	0	
Nebraska:									
Lincoln	60,941	7	1	1	0	0	91	11	0
Omaha	211,768	5	3	0	0	0	91	23	12
Kansas:									
Topeka	55,411	8	0	1	0	2	289	0	2
Wichita	88,367	14	1	1	0	0	11	0	5

[1] No estimate made.

City reports for week ended April 23, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC									
Delaware:									
Wilmington	122, 049	5	2	2	0	0	0	0	13
Maryland:									
Baltimore	796, 296	68	23	31	11	2	4	14	44
Cumberland	33, 741	0	0	2	0	0	0	0	1
Frederick	12, 035	0	0	0	0	0	0	2	1
District of Columbia:									
Washington	497, 906	54	10	29	2	0	11	0	12
Virginia:									
Lynchburg	30, 395	12	1	1	0	0	27	0	2
Norfolk	(1)	17	1	1	0	0	221	5	9
Richmond	186, 403	5	1	3	0	3	167	1	3
Roanoke	56, 208	4	0	0	0	1	2	0	1
West Virginia:									
Charleston	49, 019	2	0	1	0	0	0	0	0
Wheeling	56, 208	2	1	1	0	0	35	0	3
North Carolina:									
Raleigh	30, 371	10	0	1	0	0	76	0	2
Wilmington	37, 061	0	0	0	0	0	14	6	0
Winston-Salem	69, 031	1	0	0	0	2	148	31	1
South Carolina:									
Charleston	73, 125	0	0	0	36	1	7	0	0
Columbia	41, 225	10	0	0	0	------	0	7	1
Greenville	27, 311	2	0	0	0	0	4	0	1
Georgia:									
Atlanta	(1)	4	2	3	7	1	70	5	0
Brunswick	16, 809	0	1	0	0	0	0	3	0
Savannah	93, 134	1	0	0	14	2	5	0	4
Florida:									
Miami	69, 754	20	3	1	0	0	4	4	2
St. Petersburg	26, 847	------	0	------	------	0	------	------	1
Tampa	94, 743	1	1	0	0	0	90	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58, 309	0	1	2	0	0	0	4	2
Louisville	305, 935	5	4	2	0	0	1	9	12
Tennessee:									
Memphis	174, 533	10	3	1	0	4	5	17	6
Nashville	136, 220	7	0	1	0	2	0	0	1
Alabama:									
Birmingham	205, 670	3	2	0	10	5	51	2	7
Mobile	65, 955	0	0	0	0	0	10	0	2
Montgomery	46, 481	5	0	0	0	0	35	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31, 643	0	1	0	0	------	105	0	1
Little Rock	74, 216	3	0	0	0	0	12	0	2
Louisiana:									
New Orleans	414, 493	2	7	13	4	4	11	0	4
Shreveport	57, 857	3	1	0	0	1	19	15	0
Oklahoma:									
Oklahoma City	(1)	------	1	------	------	1	------	------	8
Tulsa	124, 478	16	------	0	0	------	281	13	------
Texas:									
Dallas	194, 450	9	3	3	0	0	148	3	1
Galveston	48, 375	0	0	1	0	0	0	0	0
Houston	164, 954	3	2	3	2	0	4	1	5
San Antonio	198, 069	1	1	10	0	2	3	0	6
MOUNTAIN									
Montana:									
Billings	17, 971	3	1	0	0	0	4	0	0
Great Falls	29, 883	4	1	0	0	0	1	1	2
Helena	12, 037	0	0	0	0	0	0	0	1
Missoula	12, 668	6	1	0	0	0	0	7	1
Idaho:									
Boise	23, 042	0	0	0	0	0	0	1	0

[1] No estimate made.

City reports for week ended April 23, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—continued									
Colorado:									
Denver	280,911	7	11	11	-------	0	129	2	9
Pueblo	43,787	12	1	1	0	0	46	0	0
New Mexico:									
Albuquerque	21,000	0	1	0	0	0	4	10	2
Utah:									
Salt Lake City	130,948	50	3	9	0	0	17	3	5
Nevada:									
Reno	12,665	0	0	0	0	0	3	0	0
PACIFIC									
Washington:									
Seattle	(1)	40	4	1	0	-------	74	61	-------
Spokane	108,897	8	2	0	0	-------	7	0	-------
Tacoma	104,455	18	1	3	0	1	70	1	0
Oregon:									
Portland	282,383	10	6	2	1	1	243	5	5
California:									
Los Angeles	(1)	45	36	47	25	1	540	13	20
Sacramento	72,260	4	2	0	0	1	11	10	2
San Francisco	557,530	47	20	9	0	0	103	53	6

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	3	0	0	0	0	0	0	0	0	0	30
New Hampshire:											
Concord	1	0	0	0	0	0	0	0	0	0	6
Manchester	2	0	0	0	0	1	0	0	0	0	17
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	4
Burlington	1	1	0	0	0	0	0	0	0	0	7
Massachusetts:											
Boston	61	102	0	0	0	13	1	0	1	14	251
Fall River	3	4	0	0	0	3	1	0	0	6	28
Springfield	5	6	0	0	0	1	0	0	0	3	43
Worcester	8	5	0	0	0	2	0	0	0	5	45
Rhode Island:											
Pawtucket	1	3	0	0	0	0	0	0	0	0	20
Providence	8	9	0	0	0	3	0	0	0	6	76
Connecticut:											
Bridgeport	9	12	0	0	0	1	0	0	0	0	39
Hartford	3	6	0	0	0	1	0	0	0	5	32
New Haven	9	2	0	0	0	1	0	0	0	0	42
MIDDLE ATLANTIC											
New York:											
Buffalo	19	21	0	0	0	9	0	0	0	9	145
New York	248	818	0	0	0	[2] 142	9	11	1	91	1,584
Rochester	15	19	0	0	0	3	0	1	0	2	89
Syracuse	10	6	0	0	0	2	0	1	0	6	63
New Jersey:											
Camden	6	4	0	0	0	1	0	0	0	1	59
Newark	25	49	0	0	0	4	1	0	0	51	103
Trenton	3	1	1	0	0	9	0	0	0	1	49
Pennsylvania:											
Philadelphia	78	119	1	0	0	38	3	2	0	30	627
Pittsburgh	26	32	0	0	0	11	1	0	0	13	184
Reading	3	4	0	0	0	2	0	0	0	5	28

[1] No estimate made.

[2] Pulmonary tuberculosis only.

City reports for week ended April 23, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	43	2	2	0	10	1	2	1	1	153
Cleveland	30	37	0	0	0	16	1	0	1	48	206
Columbus	10	5	2	0	0	8	0	0	0	13	103
Toledo	14	3	4	0	0	6	1	1	0	25	78
Indiana:											
Fort Wayne	4	11	3	2	0	1	0	0	0	1	24
Indianapolis	10	25	9	33	0	6	0	0	0	27	95
South Bend	3	3	0	2	0	0	0	0	0	1	8
Terre Haute	2	0	1	2	0	2	0	0	0	2	22
Illinois:											
Chicago	110	124	3	0	0	56	2	1	0	77	733
Peoria	2	3	1	0	0	3	0	0	0	0	17
Springfield	2	7	1	0	0	0	1	0	0	1	18
Michigan:											
Detroit	84	87	2	0	0	31	2	1	0	57	347
Flint	6	29	1	0	0	0	0	0	0	2	24
Grand Rapids	7	15	1	0	0	2	0	0	0	2	37
Wisconsin:											
Kenosha	2	7	1	0	0	0	0	0	0	3	9
Madison	3	3	0	0	0	0	0	0	0	9	4
Milwaukee	26	43	2	0	0	10	1	0	0	35	120
Racine	3	4	1	0	0	0	0	0	0	16	14
Superior	3	7	1	0	0	0	0	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	9	0	0	0	1	0	0	0	2	23
Minneapolis	40	42	8	0	0	2	1	0	0	0	110
St. Paul	27	32	4	0	0	8	1	1	0	11	70
Iowa:											
Davenport	2	1	3	0	--------	--------	0	0	--------	0	--------
Des Moines	6	7	2	0	--------	1	0	0	--------	0	45
Sioux City	2	4	1	2	--------	--------	0	0	--------	6	--------
Waterloo	1	0	0	0	--------	--------	0	0	--------	3	--------
Missouri:											
Kansas City	11	16	1	8	0	8	0	0	0	6	88
St. Joseph	2	11	0	5	0	1	0	0	0	1	32
St. Louis	33	40	4	3	0	8	2	1	0	35	210
North Dakota:											
Fargo	2	4	0	0	0	0	0	0	0	0	4
Grand Forks	0	4	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	2	3	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	1	2	0	0	--------	--------	0	0	--------	0	--------
Nebraska:											
Lincoln	2	0	1	0	0	2	0	0	0	1	19
Omaha	3	10	9	1	0	1	0	0	0	0	49
Kansas:											
Topeka	3	1	2	1	0	0	0	0	0	3	20
Wichita	2	4	2	0	0	1	0	0	0	3	31
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	8	0	0	0	2	0	0	0	0	45
Maryland:											
Baltimore	33	26	0	0	0	12	2	1	0	57	260
Cumberland	1	0	0	0	0	1	0	1	0	0	13
Frederick	0	0	0	0	0	1	0	0	0	0	4
District of Col.:											
Washington	24	27	1	0	0	14	1	0	0	5	141
Virginia:											
Lynchburg	0	2	0	0	0	0	0	0	0	5	10
Norfolk	1	11	1	0	0	5	0	0	0	16	--------
Richmond	2	3	0	0	0	8	0	0	0	2	53
Roanoke	1	1	0	12	0	2	0	0	0	0	15
West Virginia:											
Charleston	0	2	1	3	0	0	0	0	0	4	16
Wheeling	2	2	0	0	0	1	0	1	0	4	17
North Carolina:											
Raleigh	0	0	0	0	0	0	0	0	0	21	12
Wilmington	0	0	0	0	0	1	0	0	0	9	14
Winston-Salem	1	0	5	0	0	3	0	0	0	44	24

City reports for week ended April 23, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston	1	0	0	1	0	2	1	0	1	0	25
Columbia	0	0	1	1	-	2	0	0	-	6	11
Greenville	0	0	0	1	0	0	0	0	0	3	8
Georgia:											
Atlanta	.	5	3	9	0	4	0	2	0	24	60
Brunswick	0	0	0	2	0	0	1	0	0	0	5
Savannah	0	0	1	3	0	2	0	1	0	0	38
Florida:											
Miami	1	0	-	3	0	2	1	2	0	14	36
St. Petersburg	0	-	0	-	0	0	0	-	0	-	12
Tampa	0	2	0	4	0	2	0	0	0	3	27
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	2	0	0	0	4	0	0	0	0	21
Louisville	6	9	1	0	0	3	1	1	0	35	74
Tennessee:											
Memphis	4	18	4	27	0	6	0	3	0	11	64
Nashville	2	0	1	0	0	5	0	2	0	0	46
Alabama:											
Birmingham	2	4	9	2	0	2	1	0	0	14	69
Mobile	0	0	1	2	0	2	1	0	0	0	25
Montgomery	0	0	1	1	0	0	1	0	0	0	-
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	1	0	0	-	-	0	0	-	3	14
Little Rock	1	0	1	0	0	3	0	0	0	2	-
Louisiana:											
New Orleans	5	5	2	0	0	13	2	2	1	4	123
Shreveport	1	0	1	3	0	1	0	0	0	1	25
Oklahoma:											
Oklahoma City	2	-	3	-	0	1	0	-	0	-	35
Tulsa	-	3	-	0	-	-	-	0	-	6	-
Texas:											
Dallas	2	2	2	14	0	6	1	0	1	0	35
Galveston	1	1	1	0	0	1	1	1	0	0	8
Houston	0	1	1	5	0	5	0	0	0	0	67
San Antonio	1	0	0	1	0	12	0	0	0	0	80
MOUNTAIN											
Montana:											
Billings	1	1	1	0	0	0	0	0	0	0	-
Great Falls	1	6	1	0	0	2	0	2	1	0	12
Helena	0	0	0	0	0	0	0	0	0	0	2
Missoula	1	5	1	0	0	0	0	0	0	0	8
Idaho:											
Boise	2	3	1	0	0	0	0	1	0	0	3
Colorado:											
Denver	10	59	2	0	0	13	0	0	0	1	83
Pueblo	1	15	0	0	0	4	0	0	0	1	18
New Mexico:											
Albuquerque	0	4	0	0	0	4	0	0	0	0	11
Utah:											
Salt Lake City	1	15	1	6	0	0	1	0	0	18	39
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	8	8	4	0	-	-	1	1	-	37	-
Spokane	4	22	5	14	-	-	0	0	-	0	-
Tacoma	2	3	3	22	0	0	1	0	1	4	27
Oregon:											
Portland	7	5	6	3	0	6	0	0	1	6	74
California:											
Los Angeles	18	25	5	0	0	44	1	1	2	19	291
Sacramento	2	1	0	1	0	1	1	0	0	0	26
San Francisco	12	21	4	0	0	10	1	2	1	26	160

City reports for week ended April 23, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	1	0	0	0	0	0	0	0
Worcester	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York [1]	2	3	4	7	0	0	1	0	2
New Jersey:									
Newark	0	0	1	0	0	0	0	0	0
Pennsylvania: [1]									
Philadelphia	1	2	1	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	3	4	2	1	0	0	0	0	0
Wisconsin:									
Madison	1	1	0	0	0	0	0	0	0
Milwaukee	7	1	0	0	0	0	0	0	0
Racine	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	1	0	0	0	0	0	0	0
Minneapolis	2	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	0	0	0	0	0	0	0	0
South Dakota:									
Aberdeen	0		0		0		0	1	
Kansas:									
Topeka	0	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
North Carolina:									
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina:									
Greenville	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	1	2	0	0	0	0
Savannah	0	0	0	0	1	1	0	0	0
Florida: [2]									
St. Petersburg		0		0		0	0		1
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	0	0	1	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	2	0	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	0	0	1	0	1	1	0	0	0
Texas:									
Dallas	0	0	0	0	1	1	0	0	0
Galveston	1	0	0	0	0	0	0	0	0
MOUNTAIN									
Colorado:									
Denver	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1		0		0		0	0	
Spokane	1		0		0		0	0	
Tacoma	0	0	0	0	0	0	0	1	0
Oregon:									
Portland	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	2	0	1	0	0	0	1	0	0
Sacramento	1	1	0	0	0	0	0	0	0
San Francisco	2	0	3	0	0	0	0	3	0

[1] Rabies (human): 1 case and 1 death at New York, N. Y., and 1 death at Pittsburgh, Pa.
[2] Typhus fever: 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 23, 1927, compared with those for a like period ended April 24, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, March 20 to April 23, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927
101 cities	[2] 131	178	[3] 126	[3] 191	116	[4] 202	110	[3] 175	118	180
New England	139	130	80	137	125	181	47	104	73	135
Middle Atlantic	142	227	146	264	125	269	119	271	162	270
East North Central	102	179	[3] 113	[3] 160	88	[3] 170	86	[3] 136	87	132
West North Central	149	121	159	159	204	171	246	109	182	141
South Atlantic	[2] 62	147	95	157	86	[2] 126	89	141	67	136
East South Central	36	41	57	61	114	66	47	87	26	31
West South Central	155	176	60	180	60	340	30	143	47	126
Mountain	255	81	146	108	118	171	191	108	82	189
Pacific	238	194	201	170	137	126	134	115	145	157

MEASLES CASE RATES

101 cities	[2] 1,834	934	[3] 1,693	[3] 805	1,781	[4] 864	1,770	[3] 762	1,792	785
New England	1,344	197	1,460	204	1,568	269	1,809	223	1,663	295
Middle Atlantic	1,839	114	1,850	128	1,773	159	1,702	173	1,596	146
East North Central	2,091	1,092	[3] 1,504	[3] 884	1,572	[3] 920	1,471	[3] 861	1,459	778
West North Central	2,323	1,519	2,428	1,558	3,283	1,304	3,354	1,318	4,148	1,556
South Atlantic	[2] 2,731	977	2,649	1,096	2,630	[2] 1,003	2,919	1,317	2,516	1,596
East South Atlantic	2,906	438	2,875	285	3,020	611	2,772	397	3,434	520
West South Central	125	1,778	43	948	236	2,143	133	1,019	163	1,267
Mountain	310	5,088	556	3,452	419	2,796	529	2,086	1,075	1,798
Pacific	450	3,170	246	2,767	388	3,058	372	2,212	501	2,107

SCARLET FEVER CASE RATES

101 cities	[2] 324	424	[3] 296	[3] 439	274	[4] 397	307	[3] 391	284	303
New England	354	478	391	513	318	362	373	423	222	346
Middle Atlantic	210	581	210	614	176	595	187	583	201	529
East North Central	407	351	[3] 331	[3] 323	330	[3] 272	343	[3] 280	288	296
West North Central	897	401	789	469	845	435	910	397	899	343
South Atlantic	[2] 155	179	173	197	145	[2] 189	181	150	158	161
East South Central	140	163	217	173	165	178	150	219	228	168
West South Central	146	59	86	55	116	101	133	50	172	42
Mountain	210	1,133	146	1,214	100	944	173	953	210	935
Pacific	287	361	249	340	155	243	338	243	260	209

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Madison, Wis., and Norfolk, Va., not included.

Summary of weekly reports from cities, March 20 to April 23, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued.

SMALLPOX CASE RATES

	Week ended—									
	Mar. 27, 1926	Mar. 26, 1927	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927
101 cities	[2] 37	30	[3] 42	[3] 28	32	[4] 27	26	[3] 24	31	33
New England	0	0	0	2	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	10	29	[3] 17	[3] 34	18	[3] 37	14	[3] 32	22	29
West North Central	54	69	46	30	50	42	42	56	44	40
South Atlantic	[2] 95	42	41	62	67	[2] 27	43	27	47	65
East South Central	57	107	98	122	88	87	52	97	98	163
West South Central	142	75	90	63	133	105	95	88	112	96
Mountain	27	18	55	9	27	27	27	27	46	54
Pacific	209	99	346	68	137	55	137	26	139	97

TYPHOID FEVER CASE RATES

101 cities	[2] 8	8	[3] 10	[3] 8	7	[4] 8	7	[3] 8	8	7
New England	0	5	7	12	9	7	9	9	5	0
Middle Atlantic	10	7	8	6	5	6	7	5	8	7
East North Central	4	4	[3] 3	[3] 1	3	[3] 5	2	[3] 1	1	3
West North Central	2	4	8	2	10	2	4	12	6	4
South Atlantic	[2] 16	13	17	16	6	[2] 10	4	13	7	11
East South Central	16	41	31	20	10	36	0	36	26	31
West South Central	9	29	34	25	17	38	34	17	26	13
Mountain	27	0	36	0	18	0	9	9	0	27
Pacific	13	10	11	24	13	8	13	18	21	10

INFLUENZA DEATH RATES

95 cities	[2] 97	27	[3] 89	[3] 22	74	[4] 23	53	[3] 22	38	18
New England	68	7	108	12	83	7	52	16	40	12
Middle Atlantic	112	26	100	21	76	26	59	21	34	20
East North Central	104	16	[3] 110	[3] 14	81	[3] 9	67	[3] 11	42	11
West North Central	38	15	38	4	32	17	23	12	32	21
South Atlantic	[2] 83	63	39	37	59	[2] 41	43	39	30	22
East South Central	253	92	98	102	238	71	47	87	103	56
West South Central	115	26	102	30	66	52	53	43	62	31
Mountain	64	27	27	27	46	36	46	18	46	0
Pacific	14	28	21	21	14	17	21	14	4	10

PNEUMONIA DEATH RATES

95 cities	[2] 372	166	[3] 335	[3] 163	277	[4] 163	241	[3] 154	201	159
New England	429	156	467	156	358	139	302	156	233	151
Middle Atlantic	494	199	433	186	339	199	288	176	240	190
East North Central	352	141	[3] 322	[3] 148	245	[3] 132	233	[3] 142	192	135
West North Central	160	102	160	93	186	137	133	129	137	125
South Atlantic	[2] 333	215	291	224	236	[2] 159	208	188	206	180
East South Central	476	188	357	127	429	209	331	132	259	163
West South Central	163	116	185	159	159	142	181	78	128	78
Mountain	191	171	155	162	137	243	155	153	109	162
Pacific	117	110	57	128	148	117	117	117	71	97

[2] Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Madison, Wis., and Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,900
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended April 9, 1927.—The following report for the week ended April 9, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Arabia: Aden	0	0	0	0	1	0
British India:						
Karachi	----	0	0	0	4	0
Bombay	----	8	0	0	73	44
Calcutta	----	0	----	74	232	172
Rangoon	----	2	----	3	56	13
Bassein	----	4	----	10	0	0
Madras	----	0	----	0	10	0
Negapatam	----	0	----	0	1	1
Vizagapatam	----	0	----	0	3	2
Siam: Bangkok	1	1	34	24	5	2

Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
French Indo-China:						
Saigon and Cholon	0	0	11	10	0	0
Haiphong	0	0	8	----	0	0
China:						
Canton	0	0	0	0	13	----
Shanghai	0	0	0	0	1	0
Hongkong	0	0	0	0	4	3
Manchuria: Mukden	0	0	0	0	1	0
Kwantung: Dairen	0	0	0	0	2	1
Egypt: Alexandria	1	0	0	0	1	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Kamaran.
Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.
British India.—Chittagong, Cochin, Tuticorin.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Tourane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy, Tientsin.
Macao.
Formosa.—Keelung, Takao.
Chosen.—Chemulpo, Fusan.
Manchuria.—Yingkow, Antung, Changchun, Harbin.
Kwantung.—Port Arthur.
Japan.—Yokohama, Nagasaki, Niigata, Hakodate, Shimonoseki, Moji, Tsuruga, Kobe, Osaka.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

AUSTRALASIA AND OCEANIA—continued

New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
Samoa.—Apia.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibouti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—Saint Denis.
Mauritius.—Port Louis.
Madagascar.—Majunga, Tamatave, Diego-Suarez.

Reports had not been received in time for publication from:

Ceylon.—Colombo.
Iraq.—Basrah.
Kenya.—Mombasa.
Dutch East Indies.—All ports.
U. S. S. R.—Vladivostock.

Erratum:

Due to a telegraphic mistake, Public Health Reports April 29, 1927, page 1203, erroneously states that 16 smallpox cases and 12 deaths had occurred at Harbin. This information referred to Hongkong.

Movement of infected ships:

Cape Town.—The mail steamer *Armadale Castle* arrived on April 4 from Durban, having touched at East London and Port Elizabeth. On April 7, one case of pneumonic plague bacteriologically confirmed occurred among the crew. The ship sailed on April 8 for Madeira and Southampton.

ANGOLA (PORTUGUESE WEST AFRICA)

Disease prevalence—February 16–28, 1927.—During the period February 16 to 28, 1927, prevalence of certain diseases was reported in Angola, according to districts, as follows: *Benguela*—malaria, 18 cases; typhus fever, recurrent, 1 case. *Cuanza Norte*—influenza, 4 cases; malaria, 11. *Loanda*—leprosy, 1 case; malaria and dysentery present. *Mossamedes*—influenza, 20 cases; malaria, 20 cases; plague, 4 cases.

CANADA

Communicable diseases—Weeks ended April 16 and 23, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the weeks ended April 16 and 23, 1927, as follows:

WEEK ENDED APRIL 16, 1927

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever			1					1
Smallpox				2		1	7	10
Typhoid fever		1	214		5	3		223

WEEK ENDED APRIL 23, 1927

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	9			10	1			20
Lethargic encephalitis					1			1
Smallpox				7	1	3	20	31
Typhoid fever	1		136	31	1	1	1	171

Typhoid fever—Montreal—April 10–23, 1927.—During the two weeks ended April 23, 1927, 295 cases of typhoid fever were reported at Montreal, Quebec, Canada. The number of cases has decreased since the week ended April 2. (See Public Health Reports, April 22, 1927, p. 1139.)

CHILE

Typhoid fever—Smallpox—Typhus fever—January 1–March 15, 1927.—During the period January 1 to March 15, 1927, 159 cases of typhoid fever with 4 deaths were reported in Chile. At Iquique 2 cases of smallpox were reported from March 1 to 15. During the month of January 4 cases of typhus fever with 3 deaths were reported at Chillan, and 4 cases at Valparaiso. At Santiago 3 cases of typhus fever were reported during February.

CUBA

Communicable diseases—Provinces—February 20–April 16, 1927.—Cases of disease were notified in the Provinces of Cuba for eight weeks ended April 16, 1927, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguay	Oriente	Total
Chicken pox	6	79	14	51	34	41	225
Diphtheria		22	5	1	3	5	36
Malaria	1	68	1	12	162	1,633	1,877
Measles	4	54	16	34	2	2	112
Paratyphoid fever		3	2	6	2	4	17
Poliomyelitis	1						1
Scarlet fever		17	3	1			21
Tetanus (infantile)	1		2				3
Typhoid fever	1	93	12	31	18	56	211

EGYPT

Plague—Alexandria—Guerga Province.—Plague has been reported in Egypt as follows: At Alexandria, April 2 to 5, 1927, two cases with one death, occurring in the same family and in the same locality, a stable in which one of the patients was employed as groom. In the Province of Guerga, April 5, 1927, one fatal case at El-Berba.

GREAT BRITAIN

Smallpox outbreak at Dundee, Scotland—Type of disease.—Under date of March 21, 1927, 42 cases of smallpox were reported at Dundee, Scotland,[1] and during the two weeks ended April 16, 46 cases were reported.

According to a later statement appearing in the Glasgow Health Bulletin for March, 1927, the type of the disease reported at Dundee resembled that of the smallpox prevailing in central and northern England. More than 90 per cent of the cases were in children previously unvaccinated. The constitutional symptoms were stated to be slight at onset, only one case showing temperature when admitted to hospital. In only a few cases was there severe headache or vomiting. The distribution of the rash was typical, appearing first on forehead, face, and limbs, leaving the trunk untouched. The eruption was

[1] Public Health Reports, April 8, 1927, p. 1018.

superficial, and the course of the disease much more rapid than in ordinary smallpox. In some cases the secondary temperature characteristic of typical smallpox was absent.

IRELAND (IRISH FREE STATE)

Typhus fever—Donegal County—March 27–April 2, 1927.—During the week ended April 2, 1927, eight cases of typhus fever were reported in Donegal County, Irish Free State, occurring in Letterkenny district with five cases and in Milford district with three cases. The localities are rural districts.

LATVIA

Communicable diseases—February, 1927.—During the month of February, 1927, communicable diseases were reported in the Republic of Latvia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	2	Mumps	38
Diphtheria	53	Puerperal fever	2
Erysipelas	34	Scarlet fever	488
Influenza	3,201	Tetanus	1
Leprosy	7	Trachoma	28
Malaria	1	Typhoid fever	48
Measles	264	Whooping cough	177

Population, 1,900,000; estimated.

PERU

Mortality from communicable diseases—Arequipa—Year 1926.—During the year 1926 mortality from communicable diseases was reported in the city and district of Arequipa, Peru, as follows:

Disease	Deaths	Disease	Deaths
Diphtheria and croup	4	Puerperal fever	7
Dysentery	23	Smallpox	3
Gastroenteritis	[1] 56	Tuberculosis, pulmonary	140
Influenza	70	Tuberculosis, other forms	89
Malaria	16	Typhoid fever	17
Measles	9	Typhus fever	9

[1] 0 to 1 year, 31; 1 year to 2 years, 25. Population, 43,000.

Mortality—Cancer—Year, 1926.—During the year 1926 a total of 992 deaths from all causes was reported in Arequipa. There were reported 35 deaths from cancer.

Mortality—Callao-Lima—January, 1927.—During the month of January, 1927, mortality from certain diseases was reported as follows for the cities of Callao and Lima, Peru:

Disease	Callao	Lima	Disease	Callao	Lima
Cerebrospinal meningitis		3	Tuberculosis	36	88
Gastroenteritis	30	59	Typhoid fever	1	
Influenza	4	13	Typhus fever		1
Malaria	5	13	Whooping cough	1	1

Population: Callao, 60,000; Lima, 240,000; estimated.

UNION OF SOUTH AFRICA

Plague—Typhus fever—March 13–19, 1927.—During the week ended March 19, 1927, one fatal case of plague was reported in the Orange Free State, occurring in Bloemfontein District and in a native. The occurrence was on a farm. During the same period typhus fever was reported present in the Cape Province and the Orange Free State.

Typhus fever—Month of February, 1927.—During the month of February, 1927, 18 cases of typhus fever in the native population and 2 cases in Europeans were reported. The distribution according to locality was as follows:

Cape Province, 13 cases; Orange Free State, 5 (native).

YUGOSLAVIA

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	9	1	Measles	1,417	27
Cerebrospinal meningitis	19	5	Rabies	1	1
Diphtheria	151	33	Scarlet fever	319	69
Dysentery	14	1	Tetanus	16	8
Influenza	62,663	1,185	Typhoid fever	78	11
Leprosy	4		Typhus fever	9	
Lethargic encephalitis	5	2	Whooping cough	199	2

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given:

Reports Received During Week Ended May 13, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Rangoon	Mar. 20–26	7	4	
Siam				Mar. 6–19, 1927: Cases, 172; deaths, 100.
Do				Apr. 1, 1926–Mar. 19, 1927: Cases, 8,410; deaths, 5,554.
Bangkok	Mar. 6–19	41	23	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Angola:				
Mossamedes district	Feb. 16–28	4		
Ceylon:				
Colombo	Mar. 20–26	2	2	
Egypt:				
Alexandria	Apr. 2–5	2	1	In same locality.
Guerga district	Apr. 5	1	1	
Greece:				
Athens	Mar. 1–31	5	1	Including Piraeus.

[1] From medical officers of the Public Health Service, American consuls, and other sources

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended May 13, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India:				
Bombay	Mar. 20-26	8	7	
Madras Presidency	Mar. 6-12	51	37	
Rangoon	Mar. 20-26	3	4	
Java:				
Batavia	do	11	11	Province.
Siam				Mar. 13-19, 1927: Cases, 2; deaths, 2.
Do				Apr. 1, 1926-Mar. 19, 1927: Cases, 41; deaths, 32.
Union of South Africa:				
Orange Free State—				
Bloemfontein district	Mar. 13-19	1	1	Native. On Rietvli farm.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Mar. 21-31	4		
Oran	Apr. 1-10	21		
Arabia:				
Aden	Apr. 3-9	1		
Brazil:				
Rio de Janeiro	Mar. 20-Apr. 2	11	3	
British South Africa:				
Rhodesia	Mar. 12-18	75	2	Northern Rhodesia.
Canada	Apr. 10-23			Cases, 41
Alberta				Apr. 10-23, 1927: Cases, 27.
Calgary	Apr. 10-16	7		
British Columbia—				
Vancouver	Apr. 11-17	1		
Manitoba				Apr. 17-23, 1927: Cases, 1.
Ontario				Apr. 10-23, 1927: Cases, 9.
Ottawa	Apr. 17-23	1		
Toronto	Apr. 10-23	9		
Saskatchewan	do	4		
Chile:				
Iquique	Mar. 1-15	2		
China:				
Amoy	Mar. 6-26	6		
Chungking	Feb. 27-Mar. 12			Prevalent.
Hongkong	Mar. 20-26	18	9	
Manchuria—				
Dairen	Feb. 20-Mar. 6	6		
Shanghai	do	1		
France:				
Paris	Mar. 22-31	1		
Great Britain:				
England and Wales	Mar. 27-Apr. 16	1,131		
Scotland—				
Dundee	Apr. 3-16	46		
Greece:				
Athens	Mar. 1-31	9	2	Including Piræus.
India:				
Bombay	Mar. 20-26	73	45	
Karachi	Mar. 27-Apr. 2	5		
Madras	do	20	2	
Rangoon	Mar. 20-26	51	14	
Japan:				
Kobe	Mar. 27-Apr. 2	1		
Mexico:				
Mazatlan	Apr. 11-17		1	
San Luis Potosi	Apr. 3-9		2	

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Mar. 21-31	5		
Angola:				
Benguela District	Feb. 16-28	1		
Chile:				
Chillan	Jan. 1-31	4	3	
Santiago	Feb. 1-28	3		
Valparaiso	Jan. 1-31	4		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended May 13, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Feb. 27-Mar. 12			Present.
Egypt:				
Alexandria	Mar. 26-Apr. 7	3	2	
Greece:				
Athens	Mar. 1-31	13	3	Including Piræus.
Ireland (Irish Free State):				
Donegal County—				
Letterkenny	Mar. 27-Apr. 2	5		Rural District.
Milford	do	3		Do.
Mexico:				
Mexico City	Mar. 27-Apr. 2	4		Including municipalities in Federal District.
Palestine:				
Majdal District	Apr. 5-11	1		
Peru:				
Arequipa	Year 1926		9	District.
Lima	Jan. 1-31		1	
Poland				Feb. 20-Mar. 5, 1927: Cases, 174; deaths, 24.
Tunisia:				
Tunis	Reported Apr. 13	3		
Union of South Africa				February, 1927: cases, 18; in native population. European, 2 cases.
Cape Province				February, 1927: Cases, 13. Colored or native.
Do	Mar. 13-19			Outbreaks.
Orange Free State				February, 1927; Cases, 5. Colored or native.
Do	Mar. 13-19			Outbreaks.
Yugoslavia	Mar. 1-31	9		

Reports Received from January 1 to May 6, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
Do	Jan. 2-22	10	7	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 3,507.
Do	Jan. 2-Feb. 12			Cases, 15,862; deaths, 8,910.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Mar. 19	601	468	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar. 19	12	9	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Mar. 19	53	47	
Indo-China	July 1-Dec. 31			Cases, 8,508.
Do	Jan. 1-31	490		
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	056	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Mar. 5			Cases, 333; deaths, 251.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Mar. 5	40	21	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-31	3		At Port Alexander.
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Mombasa	Feb. 27-Mar. 19	7	7	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Mar. 19	41	22	13 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Present.
Do	Feb. 6-Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-Mar. 18			Cases, 14.
Alexandria	Nov. 19-Dec. 2	2		
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Port Said	Mar. 12-18	2	1	
Tanta district	Nov. 19-Dec. 20	3		
Greece	Nov. 1-30	10	1	Athens and Piræus.
Athens	Nov. 1-Dec. 31	9	4	
Patras	Nov. 28-Dec. 4		1	
Piræus	Apr. 2	1		
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-Feb. 19			Cases, 9,697; deaths, 6,413.
Bombay	Nov. 21-27	1	1	
Do	Jan 16-Mar. 19	14	12	
Madras	Jan. 31-Jan. 1	581	324	
Do	Oct. 2-Mar. 5	846	505	
Rangoon	Nov. 14-Dec 25	11	9	
Do	Jan. 2-Mar. 19	48	43	Rats found plague infected, 12.
Indo-China	July 1-Dec. 31			Cases, 52; deaths, 34.
Do	Jan. 1-31	12		
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18.
Iraq:				
Baghdad	Jan. 23-Feb 5	2	1	
Java:				
Batavia	Nov 7-Jan. 1	91	90	Province.
Do	Jan. 2-Mar. 19	287	280	Do.
East Java and Madura	Oct 24-Jan. 1	17	17	
Do	Jan 2-Mar. 5	18	18	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan 1-Feb. 15	46	44	
Analalava	Oct 16-31	1	1	
Antisirabe	Dec. 16-21	2	2	
Do	Jan. 1-Feb. 15	54	54	
Diego-Suarez	do	7	7	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan 1-Feb. 15	92	86	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-Feb. 15	50	48	
Tamatave	Oct. 16-Dec 31	107	69	Cases, 533; deaths, 497.
Tananarive	do			
Do	Jan. 1-Feb 15	244	239	
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	34	
Do	Jan. 1-Feb. 15	19	18	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct 1-Dec. 31	39	35	
Do	Jan. 1-31	5	3	
Nigeria	Aug. 1-Nov 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26
Do	Jan. 1-Feb. 28	79	18	
Departments—				
Ancash	Dec 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	Feb. 1-28	16	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb. 28	6		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-Feb. 28	66	16	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	In suburb of Belem.
Russia	May 1-June 30	44		
Do	July 1-Sept 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Thies	Mar. 28-Apr. 3	3	5	
Tivaouane	Dec. 19-25	6	2	In interior.
Do	Mar. 21-Apr. 3	4	4	Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan 16-Mar. 5			Cases, 9; deaths, 7.
Bangkok	Feb. 27-Mar. 5	1	1	
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 48.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonic.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Feb. 19	3	1	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Richmond district	Mar. 6-12	3	2	
Orange Free State	do			Cases, 12; deaths, 2.
Bloomfontein district	Feb. 27-Mar. 5	2	2	
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-Feb. 20			Cases, 327.
Algiers	Dec. 11-31	4		
Do	Jan. 1-Mar. 10	8		
Oran	Mar. 21-31	1		
Angola	Oct. 1-15			Present in Congo district.
Congo	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange	Feb. 2-15	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,083; deaths, 2,180.
Do	Jan. 2-Mar. 19	63	31	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-Mar. 5	34	21	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do	Feb. 26-Mar. 4	55	2	
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Apr. 9			Cases, 548.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Apr. 9	203		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Apr. 2	40	1	
Edmonton	Dec. 1-31	4		
Do	Jan. 1-Mar. 31	18		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada—Continued.				
British Columbia—				
Vancouver	Jan. 31-Mar. 20	7		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Apr. 9	22		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Apr. 22	9		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan 2-Apr. 9	273		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Apr. 16	8		
Toronto	Dec 14-25	14		
Do	Jan. 1-Apr. 9	79	1	
Saskatchewan	Dec. 5-Jan 1	18		
Do	Jan. 2-Apr. 9	48		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
China:				
Amoy	Jan. 1-Feb. 26	2		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Mar 20			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Feb. 26			Do.
Foochow	Nov. 7-Dec. 25			Do.
Do	Feb. 27-Mar. 19			Do.
Hankow	Nov. 6-30			Do.
Hongkong	Jan. 23-Mar. 19	70	41	
Manchuria—				
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Kai-Yuan	Mar. 20-26	1		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan 20-Feb. 26		2	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-Mar. 26	23		
Chosen	Aug. 1-Nov. 30	53	19	
Do	Jan. 21-Feb. 20	7	1	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec 1-31	10	3	
Do	Jan 1-Mar 20	19	3	
French Settlements in India	Aug. 29-Jan. 1	127	127	
Do	Jan. 2-22	24	24	
French Sudan:				
Kita	Mar. 28-Apr. 3			Present.
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 4			Cases, 2,262.
Do	Jan. 2-Mar. 26			Cases, 5,749.
Birmingham	Mar. 13-19	5		
Bradford	Jan 9-22	2		
Cardiff	Feb. 13-19	1		
Leeds	Mar. 27-Apr. 2	1		
London	Reported Apr. 28	6		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Apr. 9	19		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Apr. 2	543	1	
Wakefield	Jan. 30-Feb. 2	2		
Scotland—				
Dundee	Mar. 31	42		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-Feb. 28		51	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,008.
Do	Jan. 2-Feb. 19			Cases, 31,471; deaths, 7,645.
Bombay	Nov. 7-Jan. 1	37	20	
Do	Jan. 2-Mar. 19	411	219	
Calcutta	Oct. 31-Jan. 1	440	311	
Do	Jan. 2-Mar. 19	1,876	1,372	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Mar. 26	33	25	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Mar. 26	234	9	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Mar. 19	210	44	
Indo-China:				
Saigon	Dec. 26-Jan. 1	3		
Do	Feb. 6-12	1		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-Mar. 5	5	1	
Basra	Nov. 7-13	1	1	
Italy	Aug. 29-Jan. 1	28		
Do	Jan. 2-15	2		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Apr. 2	105		Do
Japan	Oct. 24-Jan. 1	27		
Do	Jan. 2-9	28		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Feb. 5	2		
Yokohama	Nov. 27-Dec. 3	2		
Java:				
Batavia	do	2		Province.
Do	Mar. 13-19	1		
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 4		4	
Mazatlan	Feb. 14-20		2	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Mar. 26	6		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-Apr. 9		2	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Apr. 2		25	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Dec. 31	165	40	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Apr. 2	33		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Apr. 3	4		
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Siam	Apr.-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Mar. 5			Cases, 64; deaths, 30.
Bangkok	Oct. 31-Jan 1	28	10	
Do	Jan. 2-Mar. 5	34	21	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb 8-Apr 2	9		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-Feb. 26	4	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-Feb. 20	18		
Tunis	Jan. 1-Mar. 10	3		
Turkey				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-Feb. 20			Cases, 34; deaths, 7.
Algiers	Feb. 1-Mar. 20	33		
Oran	Mar. 21-31	7		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Do	Jan. 1-31	7	3	
Chile	Sept. 15-Nov. 15	39	4	
Concepcion	do	1		
Do	Jan. 23-29		1	
Lebu	Sept. 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	Sept. 15-Dec. 31	25	2	
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Mar. 19	5	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Chosen	Aug. 4-Dec. 31	54	5	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec 31	10		
Do	Jan. 1-Feb. 28	48		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-Mar. 25	2		
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-Feb. 28	13		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov 1-Dec. 31	19	2	
Do	Feb. 1-28	4		
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Italy	Aug. 29-Sept. 23	3		
Japan	Jan. 2-29			Cases, 2.
Tokyo Prefecture	Dec. 5-25	9		
Tokyo city	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Do	Jan. 1-31	24		
Mexico	July 1-Nov. 30			Deaths, 576.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Mar. 26	70		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Dec. 1-31		2	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan 1-Mar. 5			Cases, 515; deaths, 43.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-Feb. 20	72		
Tunis	Jan. 21-Mar. 31	4		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 6, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa	Oct 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-31	38	4	
Clydesdale	Mar. 6-12			Outbreaks.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 19	12	3	
Transvaal	Oct. 1-31	1		
Do	Jan 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Feb. 28	65	4	

YELLOW FEVER

Place	Date	Cases	Deaths
French Sudan	Dec 19-25	1	1
Gold-Coast	Aug 1-Nov. 30	10	5
Nigeria	Sept. 1-Nov. 30	4	3
Senegal	Dec 19-25	3	3
Diourbel	Dec 6	1	1
Do	Jan 1-20	1	1
Guinguineo	Dec. 7	1	1
Rufisque	Nov 27-Dec. 29	2	1
Do	Jan. 2-8	3	3
Upper Volta			
Gaoua district	Oct. 25	2	

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1927

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HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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IODIZATION OF PUBLIC WATER SUPPLIES FOR PREVENTION OF ENDEMIC GOITER

By ROBERT OLESEN, *Surgeon, United States Public Health Service*

GENERAL CONSIDERATIONS

The theory that endemic goiter is due principally, if not solely, to a relative or absolute deficiency of iodine is now widely accepted. The experimental evidence upon which this conception is based is so convincing and the practical applications are so successful that doubts concerning the tenability of the theory are steadily being dispelled.

Following the convincing demonstrations of Marine and his colleagues in preventing goiter among children and lower animals through the administration of small amounts of iodine, public health officials promptly turned their attention to the important matter of applying this new and effective weapon against a disease of long standing. However, in emulating the examples of these pioneer investigators it became apparent that successful prophylaxis is dependent upon the rigid observance of certain well defined and fundamental principles. These requisites for preventing endemic goiter may be stated as follows:

1. Minute dosage of iodine.
2. Palatability of the preparation used.
3. Efficiency.
4. Harmlessness.
5. Low cost.
6. Wide range and ease of administration.

Goiter prophylaxis versus treatment.—There is an unfortunate, as well as rather general, misconception of the distinction between goiter prevention and goiter treatment. To many persons the measures advocated for prophylaxis are regarded as being equally efficacious in the treatment of goiter. This erroneous belief is also entertained by many physicians, their goitrous patients being advised to partake of iodized salt or water in order to obtain relief from thyroid disease. Because of the confusion surrounding the subject, it is believed to be advisable to restate the conditions and expectations of goiter prophylaxis.

Prophylactic doses of iodine are intended solely, of course, for the maintenance of the equilibrium of the normal thyroid. The minute doses of iodine suitable for prophylactic purposes probably have little, if any, effect upon existing thyroid enlargements. If goitrous manifestations are reduced or entirely relieved while prophylactic measures are applied, the results may be regarded as incidental rather than usual.

The treatment of existing goiters is a matter entirely removed from the realm of prophylaxis. Treatment requires, first of all, the services of a physician with special skill and experience, particularly in the diagnosis of the different forms of goiter. Furthermore, the medical attendant must possess a keen appreciation of the poisonous potentialities of iodine. As the usefulness of iodine in treating goiter is definitely limited, the possibilities of causing irreparable damage through the use of this element must be thoroughly realized. Needless to say, the breach between goiter prophylaxis and treatment is a wide one. When the essential differences are more generally understood, both preventive and curative measures will be placed upon a more secure basis.

Water and salt as mediums for conveying iodine.—Inasmuch as the form in which iodine is conveyed to those in need of the prophylactic is apparently immaterial, numerous preparations, combinations, and methods have been proposed. However, from a practical standpoint it is essential that the iodine be administered in palatable form to all in need of it and with a minimum of administrative supervision. With these objectives in view, investigators began the search for a medium in which iodine could be conveniently distributed.

Water and salt, being the most frequently used articles of food, were naturally chosen early as suitable vehicles for the general distribution of iodine. Iodized table salt is now extensively used in some sections of the United States and Europe, particularly in Switzerland, Austria, and Italy. While the reports as to its efficiency and harmlessness are not in harmonious agreement, nevertheless iodized table salt may be considered a prophylactic of considerable promise, especially after the iodine content has been scientifically adjusted.

When McClendon and Hathaway announced, in 1924, the apparent existence of an inverse ratio between the incidence of endemic goiter and the amount of iodine in the drinking water of a given community, interest in goiter prophylaxis was still further increased. In view of the close relationship presumably existing between goiter and the amount of iodine in water, it was but natural that attention should be directed to the possibility of utilizing artificially treated water in preventing simple goiter.

It appears that Dr. G. W. Goler, health officer, in cooperation with Mr. B. C. Little, superintendent of the waterworks bureau of Rochester, N. Y., were the first to propose, and actually put into effect, the iodization of a public water supply for the prevention of simple goiter. Since that time several cities in the United States and England have instituted the same procedure. In the following discussion will be considered the various angles of the subject.

SPECIAL CONSIDERATIONS

Quantity of iodine required for prophylaxis.—Much of the objection which has arisen to the use of iodized water in preventing simple goiter is due to the difficulty in establishing and maintaining a suitable iodine content. Iodine must, of course, be present in sufficient quantity to satisfy the thyroid requirements and, at the same time, be incapable of inflicting damage upon the glands of hypersusceptible individuals. McClendon, after a number of years of intensive research, has concluded that the iodization of water supplies in goitrous sections is an acceptable and efficient means of supplying needed iodine. He believes that 0.01 milligram of iodine daily is sufficient for physiological requirements and, hence, is prophylactic in character. One-tenth of a pound of sodium iodide per million gallons of water would, in McClendon's opinion, be ample for the maintenance of thyroid equilibrium. Water so treated would contain 1 part of sodium iodide in about 100,000,000 parts of water. McClendon believes that the iodide may be supplied continuously or intermittently, the iodide being proportionately increased when the latter method is followed. By following these suggestions it is theoretically possible, at least, to have a proportion of 10 parts of sodium iodide to 1,000,000,000 parts of water. McClendon regards a region as amply supplied with iodine when the water contains 5 or more parts of iodine per 1,000,000,000 gallons. This line of demarkation between iodine rich and iodine poor water supplies may, in the absence of an established standard, be used as a point of departure in deciding whether the procedure is justified.

Iodization in Rochester, N. Y.—As iodization of drinking water has been carried out more scientifically in Rochester, N. Y., than elsewhere, the methods adopted in that city are of particular interest. Iodization was begun in Rochester in April, 1923, and has been continued twice a year since that time. The experience gained with the early iodization has resulted in considerable improvement and satisfaction with the later methods. At present there are 21 applications of sodium iodide twice a year, each of 16.6 pounds, the first in May and June, the second during October and November. The applications of sodium iodide are now made as follows: During

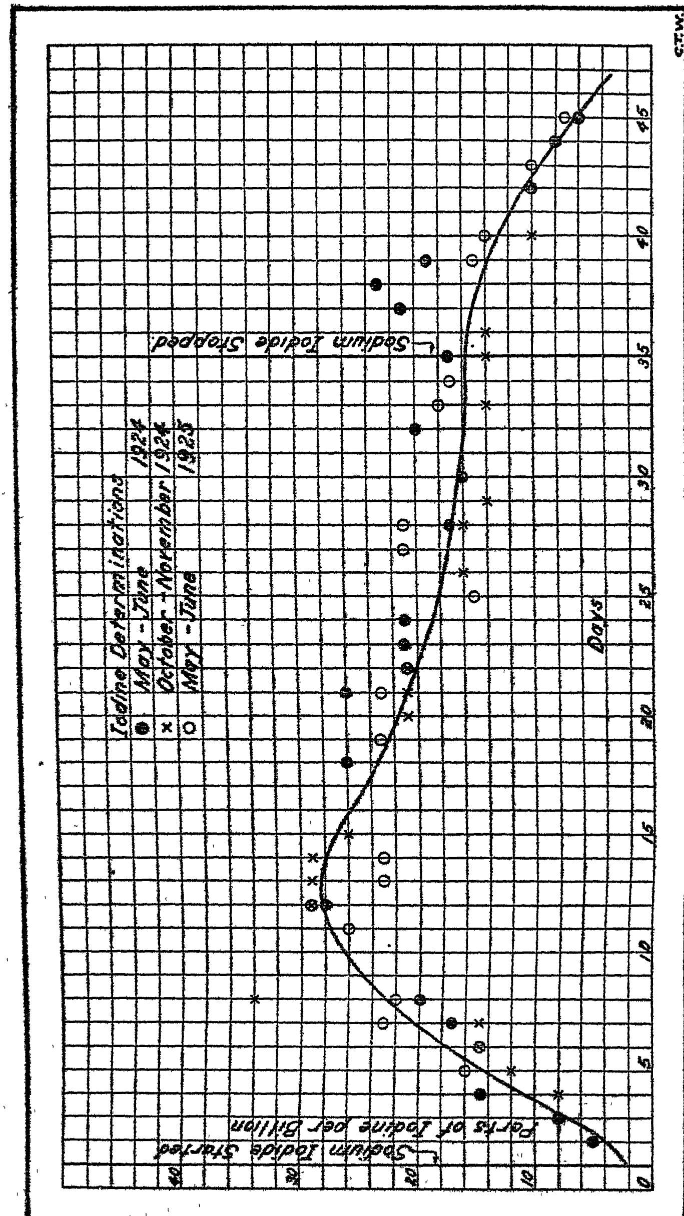

CHART 1.—Results of daily iodine determinations made on iodized drinking water at Rochester, N. Y., during three periods of iodization, May–June, 1924, October–November, 1924, and May–June, 1925

the first week the salt is added daily. Thereafter the additions are made every other day until 21 have been completed. By this means a concentration of iodine ranging between 14 and 28 parts per billion is insured for a period of nearly five weeks. The results of daily iodine determinations made during three of the periods of iodization are shown graphically in chart 1. From the actual analyses of the water it is estimated that each person in Rochester ingests 3.1 milligrams of iodine in one year. This amount coincides rather closely with the annual quantity of iodine, 3.65 milligrams, recommended by McClendon.

In calculating the quantity of iodine present in water after treatment with an iodide it is necessary to remember that the element iodine is only a portion of the compound ordinarily used. Thus, the percentage of iodine in sodium iodide is approximately 85 per cent. Therefore, in estimating the parts per billion of iodine present in water, the calculations, in the instance of sodium iodide, must be made upon the basis of percentage composition.

Per capita water consumption and iodine dosage.—In the absence of accurate knowledge as to the average per capita consumption of water, it is obvious that the amount of iodine ingested from an iodized supply is uncertain. Ordinarily, it is estimated that two quarts of liquid are consumed each day by the average person, one-half of this amount being water, while the remainder is fluid in coffee, tea, and other beverages. Probably an additional quart of liquid per capita is used in cooking, thereby affording another source of iodide.

If each person in need of prophylaxis consumed definite quantities of iodized water and the amount of iodide was sufficient to insure results, this method of supplying the needed element could be relied upon to achieve results. Unfortunately, the consumption of water varies within a wide range, some individuals drinking considerable water while others use relatively small quantities. However, the amount of iodine present in properly treated water is so minute that no harm could possibly result from an excessive consumption of water. On the other hand, it is conceivable that these same minute doses of iodine will prevent simple enlargement of the thyroid gland. At the same time, it must be conceded that the iodine obtained from treated water is likely to be uncertain in quantity.

Objections to the use of iodized water.—The objections raised against the use of iodized drinking water as a means of preventing endemic goiter have been numerous. The strongest disapproval has come from the group which discredits all attempts of scientific medicine to minimize the prevalence of disease. Iodization of drinking water is termed by them a "doping" or poisoning process. In view of the minute quantities of iodide used, and the scientific premise on which the procedure is based, the objections of an organized minority may

be somewhat discounted. There are, however, certain apparently legitimate objections which deserve consideration. Among these may be mentioned the possibility of inaugurating toxicity in apparently benign goiters, excessive cost, waste, offensive taste, undesirable chemical combinations, and the like. Each of these objections may be considered separately.

Cost of iodizing public water supplies.—The cost of a public health measure is an item of obvious concern to administrators and taxpayers. It is manifest that goiter prevention should be alloted a fair proportion of public funds commensurate with its relative importance. Heretofore, estimates of the cost of iodizing public water supplies have varied within wide limits. However, the actual expenditures incurred by the city of Rochester for this purpose apparently form a reasonable point of departure for other calculations. Rochester spends approximately $3,000 a year in iodizing its water. As the city has a population of 300,000, the annual per capita cost of the procedure is 1 cent. The sodium iodide used for treating the water costs about $4.30 a pound, delivered in Rochester.

Anaconda, Mont., is another city in which iodization of the public water supply is being practised. The annual expenditure for sodium iodide in this city is $600, or approximately $0.05 per capita, the sodium iodide costing $4.75 per pound f. o. b.

Kimball estimates that it would cost the city of Cleveland $125,000 a year to iodize the drinking water. The health officials of Chicago estimate that $57,120 a year would be required to increase the iodine content of Lake Michigan water to one-seventy-fifth grain per gallon. With sodium iodide costing $3.75 a pound, delivered, Mellen estimated that the water supply of Minneapolis, Minn., could be iodized at a total annual cost of $6,500, or a cent and a half per person. The cost in Duluth, Minn., would be less than $2,000 a year.

Bolt and Wolman have prepared an informative summary of costs, shown in Table 1, based upon the expenditures in Rochester, N. Y., and Sault Ste. Marie, Mich., and the estimates of Ellms for Cleveland and of Bahlman for Cincinnati.

TABLE 1.—*Estimated cost of iodization of public water supplies in 4 cities in the United States*

City	Population, 1920	Average pumpage per day	Amount NaI per day	Cost NaI per pound	Cost per year, 3 weeks' dosage twice a year	NaI in the water	Cost per capita year (approximate)
		M. g.	*Pounds*			*P. p. b.*	*Cents*
Rochester, N. Y.	295,750	25	16.6	$4.35	$3,082.82	75	1.0
Sault Ste. Marie, Mich.	12,096	3	2	4.35	365.40	75	3.0
Cleveland, Ohio	796,841	150	100	4.35	[1] 12,180 [2] 18,270	75	1.5 2.3
Cincinnati, Ohio	401,247	56	37	4.35	[1] 4,506.60 [2] 6,759.90	75	1.1 1.6

[1] 2 weeks. [2] 3 weeks.

The costs in this table are based upon the assumption that the quantities of sodium iodide used will be sufficient to secure a content of 75 parts of iodine per billion gallons of water.[1] However, in all probability a greater amount of sodium iodide, and consequently larger expenditures, would be required to secure this concentration. Most of the estimates which have been given indicate that the expense attached to iodization of public water supplies is reasonable, provided, of course, favorable results are forthcoming.

Waste.—To many persons the iodization of a public water supply appears to be a wasteful, and consequently an unnecessarily costly, method of conveying iodine to those in need of it. Inasmuch as less than one-half of 1 per cent of a water supply is used for drinking and cooking purposes, there would seem to be justification for the charge that most of the water is unnecessarily iodized. Obviously, nearly all of any water supply is used for sanitary purposes, laundering, boilers, street flushing, automobile washing, and numerous other purposes unassociated with disease prevention.

However, the same objections may reasonably be raised with regard to other methods of water improvement. The safeguarding of water supplies by filtration and chemical treatment is so well established as to be accepted as a necessity rather than an esthetic refinement or luxury. Thus, raw water supplies are subjected to coagulation, sedimentation, filtration, and disinfection, all expensive processes, in order that the fluid may be made safe for human consumption. Lime, alum, and chlorine are widely used in connection with such water treatment. For softening hard water, lime and soda are frequently employed, while copper sulphate is used as an algicidal agent. None of the water supplies treated with the chemicals just mentioned are now regarded as drugged, medicated, or doped. Quite on the contrary, the processes are generally conceded to be necessary for the safeguarding of comfort and health, even though only a comparatively small quantity of the water is actually consumed. Moreover, present day opposition to the chemical treatment of polluted or unsuitable raw waters is insignificant, permitting the steady extension of protective measures, with consequent lessening of water-borne diseases.

Reaction between iodine and chlorine.—In discussing the iodization of water before the Ohio Conference on Water Purification in 1924, Ellms intimated that an undesirable chemical reaction occurred

[1] It will be noted that there is a marked difference between the 5 parts of iodine per billion gallons of water regarded as sufficient by McClendon and the 75 parts per billion gallons upon which the cost data presented here are calculated. These estimates were, of course, made by different observers. Obviously, the proper amount of iodine to be conveyed in drinking water for prophylactic purposes is not definitely known. If, as McClendon contends, 5 parts of iodine per billion gallons of water is adequate, the cost of iodizing drinking water would be materially less than the amounts given in the table. It may also be pointed out that the Rochester experiment shows that the amount of iodine recoverable from water after the addition of sodium iodide is much less than the quantity added.

between the iodine and the chlorine, so commonly used for disinfection. Although his observation lacks confirmation, Ellms contended that chlorine has a tendency to decompose sodium iodide and liberate iodine While the element would not be lost, its combination with organic matter, or reaction with other normal constituents, might adversely affect its prophylactic value. No objection of similar character has been noted in the literature.

Taste.—Much greater quantities of iodine than those ordinarily recommended could be placed in drinking water without imparting a detectable taste. Mellen, for example, states that he has drunk water containing one thousand times the amount of iodide proposed for Minneapolis (10 parts per billion), without being able to detect the taste. It is known, too, that individuals going from a district having water with a low iodine content to another locality with a high iodine content do not complain of an offensive taste. Moreover, there is no record of damage having been inflicted upon the thyroid by reason of removal from a district with low iodine content to one with a high content.

Hyperthyroidism.—The possibility of stimulating an apparently quiescent thyroid gland to hyperactivity and toxicity through the use of iodine is a contingency particularly to be guarded against while employing prophylactic measures. However, it is difficult to understand how the minute quantities of iodine available in iodized drinking water could exert such a detrimental effect. It would seem more reasonable to question the ability of the measure to exert any beneficial influence upon the normal thyroid gland. However, as there is convincing evidence that minute doses of iodine, in other combinations, aid in maintaining the thyroid equilibrium, it is likely that iodized water will, under fair conditions, do likewise.

No instances of hyperthyroidism following the use of iodized drinking water appear to have been recorded. The opinion of Dr. C. H. Mayo, concerning the harmlessness of iodized water, is typical of many expressions from physicians who have considered the matter. Doctor Mayo has said, in a communication addressed to the health commissioner of Minneapolis, "As there is no type of goiter which would be injured by the small amount of iodine obtained from the water, I do not believe there would be any risk whatever in such cases."

On the other hand it can not be denied that some physicians are apprehensive lest the "promiscuous distribution of iodine," as they term it, to those not in need of the element, cause a marked increase in hyperthyroidism. Manifestly, there is need for accurate information on this point.

PRACTICAL APPLICATIONS AND RESULTS

Cities using iodized water.—So far as can be learned from correspondence with all of the State, county, and city health officers (the last named in cities having populations in excess of 10,000) in the United States there are only two places in which iodization of drinking water is now practiced, Rochester, N. Y., and Anaconda, Mont. Iodization of the Rochester water supply began in April 24, 1923, and will be continued according to an announcement in the Rochester health bulletin of May, 1926, "until, through education or in some other way, we get the people to consume iodized salt."

Iodization of the Anaconda, Mont., water supply began in April, 1925, and was continued in October, 1925, April, 1926, and October, 1926. Children in the Anaconda schools are also receiving 10 milligram chocolate-iodine tablets once a week for 30 weeks during the school year. Iodization was practiced for a short time in Sault Ste. Marie, Mich., and Virginia, Minn., but was speedily abandoned because of numerous objections from residents.

The health and water works officials of Minneapolis, Minn., have repeatedly advocated iodization of the public water supply. Moreover, preparations were made to put the procedure into effect. Owing, however, to many objections the project never materialized. In Duluth, Minn., the water and light department of the division of public utilities, has been very active in advocating iodization of the water. According to the investigations made by McClendon, the Duluth water contains the least amount of iodine of any locality in the United States. However, objections have prevented the inauguration of the measure.

In the county of Derbyshire, England, iodization of drinking water was practiced on a limited scale during 1925, the results being reported by the school medical officer. According to J. A. Goodfellow, the water supplies of Ilkeston and Heanor are being treated with sodium iodide. In these last-named places the iodization is continuous, 2 pounds of sodium iodide being added weekly.

Method of adding iodide to water.—Owing to the readiness with which sodium and potassium iodide dissolve in water, no difficulty has attended the introduction of these salts in large public supplies. In Rochester the weighed amount of sodium iodide is placed in a bag and allowed to dissolve in the swiftly running water entering Rush Reservoir from Hemlock Lake. That the salt is disseminated throughout the reservoir is attested by the uniform iodine content of water from widely separated city taps. Apparently no special apparatus or means for insuring even distribution of iodine in a water supply are required.

Alleged collateral benefits of iodized water.—Quite aside from the beneficent influence presumably exerted upon the normal thyroid gland through the use of iodized water, may be mentioned the advantages possibly accruing in other directions. In extolling the cause of iodized water, the Water and Light Department of Duluth, Minn., makes the following statement (Bulletin 43, issued in April, 1926):

> Everyone drinks water every day, uses it to water his garden, sprinkle his lawn, lay the dust in the street in front of his house, washes his floors, his clothes, his face and hands, and even bathes in it. If iodized and used on the garden it gives the vegetables and fruits their proper proportion of iodine. Some of it is evaporated into the air where it combats dust carriers of infection. Iodized water for the dairy herds helps to iodize the milk. It is beneficial, even if breathed into the lungs. However, most of it is washed into the sewers, where it is carried out into the lake, where it prevents goiter in our food fishes. None of the iodine is actually wasted or lost.

Whether, with our present incomplete knowledge of the subject, this enthusiastic view is justified, can only be conjectured.

Results.—The chief difficulty in appraising the efficiency of iodized water as a goiter prophylactic arises from lack of clear-cut statistical evidence. In most communities in which goiter is present to an extent sufficient to warrant the institution of prophylactic measures, iodine is available in several forms. In addition to iodized salt, iodine of some other form may be prescribed by the family physician. When the drinking water is also iodized, it is, of course, difficult to decide which of the several measures deserves credit for changes in goiter incidence.

According to the health authorities in Anaconda, Mont., endemic goiter is less prevalent than before prophylaxis was inaugurated. However, no accurate figures supporting this impression appear to be available. Owing to the fact that both iodized water and iodine tablets are being used by the school children, it is impossible to ascribe the lessened incidence definitely to either of the two methods.

The health authorities of Rochester, N. Y., claim a reduction in goiter incidence following the iodization of the public water supply. In 1923 there were 3,844 children with visible thyroid enlargements; in 1924, there were 1,766; and in 1925, 2,010. While there has apparently been a decrease in the number of instances of goiter observed, the testimony would be more convincing if percentages based upon the total annual numbers of children of each sex examined were available. Inasmuch as the use of iodized table salt has been recommended in Rochester, it is questionable whether any reduction in goiter incidence may be ascribed solely to the iodization of drinking water.

Derbyshire, England.—According to Ash, goiter increased among the boys and girls of four schools in Derbyshire County, England, following iodine prophylaxis. The experiments lasted approximately 10 months each, and included the use of iodized water alone, iodized tablets alone, and combinations of the two measures. In each instance Ash recorded a decided increase in the amount of goiter at the second examination. The results of the Derbyshire experiments have been arranged in tabular form in Table 2.

TABLE 2.—*The effects of one year's use of iodized drinking water and iodized tablets upon the thyroids of the pupils in four schools in the county of Derbyshire, England*

School	Time of examination, 1925	Iodine supplied in—	Ages	Sex	Number examined	Number of goiters	Per cent of goiters
1	Feb. 26	Tablets and water	9-14	Female	306	75	24.5
	Dec. 18				287	192	66.9
2	Feb. 27	Water only	5-10	do	108	32	29.6
	Dec. 11				118	59	42.3
	Feb. 27		5-7	Male	59	11	18.6
	Dec. 11				50	13	26.0
3	February	Tablets only during first half year.	7-14	Female	271	127	46.8
	January, 1926	Water only, during second half year.			283	146	51.5
4	March	Tablets only during second half of year.	10-18	do	151	62	41.3
	December				131	85	64.8

An increase in the prevalence of goiter among children following the use of iodine is most unusual and no similar incident has been recorded in the United States. As the numbers of children included in the experiments were small, and no parallel control groups were studied, the validity of the conclusions may be questioned. Iodized water alone was used in only one of the four experiments.

The results of the experiments in which both iodized water and iodized tablets, or iodized sweets, as Ash calls them, were used, are an indictment of iodine prophylaxis rather than the methods employed. It is felt that the time during which the experiments were carried on was too short to permit of an accurate appraisal of either of the methods employed. It would be interesting to learn something of the status of the several groups one year after the complete withdrawal of iodine.

Opinions of health officers concerning iodized water.—The proposal that endemic goiter be prevented through the medium of drinking water has created widespread interest. Health officers, especially, have manifested marked interest in the possibilities of the measure. In an effort to learn the attitude of county and city health officers toward iodized water, a questionnaire was addressed to 1,040 workers of this type in the United States. The replies, received from 56.3 per cent of this group indicate an uncertainty concerning both the justifiability and efficiency of treating drinking water with iodine.

The answers received from 566 health officers may be tabulated as follows:

Favorable to use of iodized water	159, or 28 per cent.
Undecided	105, or 18.5 per cent.
No opinion	202, or 35.7 per cent.
Opposed to measure	100, or 17.7 per cent.
Total	566

CONCLUSIONS

The iodization of public water supplies, in its present state of development, can not be recommended for widespread adoption. However, the measure appears to be theoretically sound and promising as a means of reducing goiter incidence when correctly used. The chief points in its favor are its comparatively low per capita cost, its apparent harmlessness even to existing goiters, and its wide range of applicability.

So far, there is considerable doubt as to the ability of iodized water to reduce the incidence of endemic goiter. This important point should be clearly established before further commendation of the measure can be forthcoming. However, the lack of convincing evidence of the efficiency of iodized water appears to be the result of poorly controlled experimental applications, rather than any inherent defect of the procedure itself.

While the measure can not be recommended for wider use until stronger evidence concerning its value is forthcoming, nevertheless, iodized water should not be condemned as worthless. Rather there is need for more precise experimental work, with careful and repeated thyroid examinations, both of children as well as adults. Comprehensive control experiments in nearby communities, among groups which are not consuming iodized water, are also essential. In conjunction with these precautions, it is also desirable that epidemiological observations be made for the purpose of learning whether other iodine preparations are being used. The results of such scientifically performed experiments would readily disclose the worth or worthlessness of iodized drinking water as a means of preventing simple goiter.

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MALARIA AMONG MEXICAN COTTON PICKERS IMPORTED INTO MISSISSIPPI

By M. A. Barber, *Special Expert*, and C. P. Coogle, *Acting Assistant Surgeon, United States Public Health Service*

The first considerable importation of Mexican labor for cotton picking in the Mississippi Delta occurred in the autumn of 1925, a year when the cotton crop was large and the amount of available labor scarce. According to the records of the local railway company, 461 persons were brought into 5 counties of the Delta, 273 of whom came to Leflore County. In addition, a few were brought in by automobile. Practically all of the laborers came from Texas, largely from the vicinity of San Antonio, Houston, Austin, and Dallas, where many of them had resided for some time.

The laborers were distributed widely over the county, usually groups of 50 or less being found on any one plantation. They were mostly men, but some brought their families with them. Among 191 whom we examined in 1925 there were 26 women and 13 children, the children being 10 years of age or under. Laborers were usually furnished with housing and firewood, but they supplied their own food and bedding. They lived in bunk houses or in renters' cabins scattered over the plantation. Their habitations were usually unscreened.

One plantation (plantation R. D.) had reported a good deal of malaria among the Mexican laborers, and on November 25, 1925, we made a survey there. We examined the blood of 47 laborers, nearly all men, and found 21.3 per cent with malaria parasites. Three or four were ill at the time of our visit, and 18—or 38.3 per cent—gave a history of illness after their arrival in Mississippi. Most of the histories suggested malaria, and the blood specimens of those ill at the time of our visit showed malaria parasites. There had been one death with symptoms of malaria. According to the information obtained from the plantation managers and from the laborers themselves, no malaria appeared among the Mexicans until two weeks or more after their arrival. They reached the plantation in late September and had been there about 60 days at the time of our visit. Most of them stated that they had not suffered from malaria in Texas.

Of the 10 cases positive for malaria parasites, 2 harbored the benign tertian type and 8 the estivo-autumnal. In 7 of the 8 estivo-autumnal cases crescents were found.

We then surveyed five other groups of Mexican cotton pickers on plantations in Leflore and Coahoma counties. Among 144 persons whose blood we examined, not one positive for malaria parasites was found. But few gave histories of any sickness, and we found little evidence of the presence of malaria in any group. The period of

residence on the plantations varied in the different groups. In one group of 18 persons it was only two or three weeks; in a group of 39 it varied from 36 to 46 days; in the remaining 87 persons it was 76 to 86 days. In many cases the exact time of arrival could not be ascertained.

In a summary of the observations of 1925, it appears that only one out of six groups suffered much from malaria in Mississippi. In one group, that on R. D. plantation, the evidence is almost conclusive that the laborers acquired malaria after their arrival on the plantation. The lack of parasites in the other laborers examined, many of whom had come from the same localities of Texas as did those on the R. D. plantation, indicates that the general parasite rate of the laborers on arrival was low.

During the autumn of 1926 Mexican labor was again imported. We examined for malaria parasites the blood of 68 shortly after their arrival in Mississippi in early October, and found 5 positive, 7.3 per cent, all harboring the benign tertian type. The 68 included a group of 15 (plantation K) from Donna, Tex., and a group of 53 (plantation W) from the vicinity of San Antonio, Tex.

Six weeks after the first examination we again visited both groups and found 47 of the original 53 laborers still present on plantation W and 13 of the original 15 on plantation K. The blood of these laborers was reexamined. Two of the five positive on the first examination were again found positive, both with the benign tertian type of parasite and both on plantation K. No other positive was found. One case of malaria had been reported on plantation W; none on plantation K. The endemic malaria rate is comparatively high in the local negro population on plantation W.

About 106 Mexican laborers were brought into Leflore County during the fall of 1926 and 76 into neighboring counties. A few who arrived in 1925 remained on the plantations in Mississippi, but the majority of those imported during both years returned to their homes within three months after arrival.

During the summer of 1926 we made a short malaria survey of the Rio Grande Valley in Texas. We found evidence of considerable malaria in the two lower counties of the valley; but our survey, as well as all other sources of information available, indicated that the malaria rate is comparatively low in counties farther west, both along the Rio Grande and in the interior of the State, counties from which most of our Mexican laborers come. That some laborers bring malaria with them from Texas, however, is shown by our surveys of laborers recently arrived in Mississippi.

The type of malaria parasite found in a group of immigrants does not, of course, give conclusive evidence of the origin of the infection; but it is noteworthy that of 35 positive specimens found by us in August, 1926, along the Rio Grande in Texas all were benign tertian.

The five positives found among Mexican laborers at the time of their arrival in Mississippi in 1926 were also benign tertian. However, all but 2 of the 10 positives found on the R. D. plantation in Mississippi in late November, 1925, were estivo-autumnal, the type most prevalent in the Delta region during late summer and autumn.

The presence or absence of acquired malaria in groups of immigrants little protected from mosquitoes should afford some indication of the amount of indigenous malaria prevalent in a region. It appears that on most of the plantations where the Mexican laborers were employed the amount of transmissible malaria was not great. The problem presents many variable factors, however—the time of arrival of laborers, character of the season, the anopheline intensity, and the more or less chance presence of gametocyte carriers—so that our study will have to be continued through more than two seasons before we can obtain wholly satisfactory information in regard to the malaria danger of different localities. The immunity enjoyed by the majority of the imported laborers indicates that, generally throughout the region, malaria danger has decreased, as immigrants to the Delta 30 or 40 years ago suffered severely.

SUMMARY

Eight groups of Mexican cotton pickers, comprising 259 persons, imported into the Mississippi Delta, were examined for malaria at different times during the autumns of 1925 and 1926. One group showed malaria in epidemic form, and the evidence—based on histories, parasite rate, and type of parasite—indicated that the disease had been acquired in Mississippi. The danger of malaria among such temporary laborers, although varying greatly with localities and seasons, exists here in sufficient amount to warrant attention. With increasing scarcity of labor, it should prove of financial advantage to employers to protect imported labor against malaria. Further, employers have a public as well as a private responsibility in such matters. Screening of bunk houses in which the laborers are housed would reduce the danger. In any case, plantation physicians and local health officers should keep such groups of laborers under close medical supervision and should guard against possible epidemics. Mexican laborers usually remain but a few weeks in Mississippi, but they work at a season when the danger of malaria, especially of the estivo-autumnal type, is comparatively great; and a group infected in Mississippi may remain long enough to spread the disease there. Migratory laborers are an efficient means of transmitting disease, and a group of persons infected in one State may carry malaria to regions in another State, previously exempt, and disseminate it there.

THE HEALTH BUDGET AND VITAL STATISTICS IN MONTREAL, CANADA

The following interesting information regarding health work and vital statistics in Montreal, as set forth in the annual report of the director of the department of health, is taken from a review of the report published in The Medical Officer for April 16, 1927:

The whole department is comprised of divisions, for example, "Contagious Diseases," "Child Hygiene," "Sanitation," "Food Inspection," etc., each under the control of a superintendent who contributes an independent account of the work of his division to the general report, while the director's own report is confined to a discussion of the movements of population, birth rate, death rate, marriage rate, and so on, with general remarks upon exceptional occurrences, new departures, and recent legislation. A feature * * * extremely interesting is the report of the division of municipal assistance, which takes up by far the largest share of the money allotted to the department. Under this heading we have an account of the handling of neglected children, juvenile delinquents, indigent persons, mendicants, the insane; also deportation and repatriation of immigrants. Details of the departmental budget occupy several pages, from which we gather that the total expenses of the health department for 1925 amounted, in round figures, to a million and a quarter dollars (say, £250,000), and of this sum, municipal assistance took over £168,000, while "hygiene" had to be content with £54,600. Worked out per head of population the figures quoted give approximately 1s. 7½d. for hygiene and 5s. 0½d. for municipal assistance.

The population of Montreal, including French and British, Canadians, Jews, and numerous other nationalities, is put at 669,800. The birth rate, which stood at 40.1 ten years ago, has steadily decreased and now stands at 32.81, with 5 per cent illegitimate; the marriage rate, however, remains fairly constant in the neighborhood of 9.5 per 1,000 population over the same period. Along with this must be considered the infant mortality rate, which is represented by the unfortunately high figure of 122.41; but even this is an improvement upon 180–190 ten years ago. Among the causes of death in this group, diarrhea stands high, about 40 per cent of the total deaths, and the same proportion holds good in the age group 0–2 years. Substantial improvement in this matter is expected when the new milk laws have had time to operate; but it appears from another portion of the report that much yet remains to be done in the way of making the child welfare centers and clinics more popular. Compared with the foregoing, the general death rate presents much more satisfactory features. For the year under review it is 14.26 per 1,000, as compared with 18–20 in the past decade; but of the total deaths, until last year there has always been about one-third relating to infants. Among the infectious diseases, measles and scarlet fever alternate from year to year in accounting for the highest number of cases, while diphtheria comes next in order of frequency, but with the greater number of deaths. Typhoid fever in the past five years does not show much improvement, there being on an average 150–200 cases, with 50–60 deaths yearly; but smallpox has been absent except in 1921 (37 cases, no deaths) and in 1924 (9 cases, no deaths). With regard to housing, progress is rather handicapped by the laxity of the building by-laws, which allow flats to be erected on a 12½-foot frontage. This means that the rooms are built in line, and that only the front and the back room can obtain direct daylight, any intermediate room being indirectly lighted

through the others. These dwellings are rightly described as "dangerous for the people living therein, and for public health in general," because they are "lacking in air and light, conduce to overcrowding, and make control of contagious diseases difficult, not to say impossible." In spite of these adverse conditions, considerable progress has been made in the reduction of tuberculosis; thus, for the five years from 1915–1919, the average tuberculosis death rate (all forms) was 2.02, for the next five years it was 1.56, and for 1925 it was 1.40, a result due in no small measure to the antituberculosis campaign, which includes the utilization of hospitals, clinics, open-air camps, and home nursing.

One can extend a considerable amount of sympathy for those who are laboring for the health of the community against such odds, particularly the paucity of the funds allotted to purely health matters, and express the hope that the present report will help to make those who hold the purse strings realize that public health is largely a purchasable commodity which it pays to buy.

DOG BITES AND RABIES IN NEW YORK CITY DURING 1926

The number of dog bites and the number of rabid dogs in New York City show a large increase in 1926. The number of dog bites in the city has been increasing annually since 1918. In 1909 there were 5,168 dog bites reported in New York City. In 1914 there were 4,640, and the number declined to 2,771 in 1918. Since 1918, however, the number has been mounting rapidly each year, until it reached the record figure of 8,608 in 1926. The number of rabid animals discovered dropped from 330 in 1914 to 24 in 1916, from which year it remained well below 100 until 1926, when it rose to 463 (from 75 in 1925).

In asking the cooperation of all dog owners in eliminating the danger from rabid dogs, the Commissioner of Health of New York City makes the following statements in the Weekly Bulletin for April 9, 1927, issued by the city department of health:

In all, 83,009 dog bites were reported to the department during the years 1908 to 1926, inclusive. During this period the bureau of laboratories reported 2,291 cases of rabid animals. The special significance of this is the fact that there were 9 cases of human rabies during the period, all of whom died. This tells in brief the basis for our rigid enforcement of the regulation to muzzle dogs. Those living in more or less densely populated sections of the city are urged to keep their dogs on short leashes.

A study of the records shows that the number of animal bites during 1926 as compared with some of the preceding years was twice and even three times greater than the record of some of the years included in the study. The number of dog bites, 8,608, in the year 1926 and the number of rabid animals discovered by our laboratory examinations, 463, are the largest numbers recorded since 1908. The number of rabid animals during 1926 exceeds by 37 the total number discovered from 1916 to 1925, inclusive.

During the first quarter of 1927 there were 153 cases of animal rabies and 1,898 dog bites, as compared with 82 cases of animal rabies and 1,277 dog bites for the same period of 1926.

The eradication of rabies can be acomplished by two well-known methods—the muzzling of dogs and the Pasteur treatment. Rabies was entirely eradicated from Great Britain by excluding all dogs from entry into the country, and here, as in Germany, during the few years preceding the war, the simple method of enforcing the muzzling ordinance achieved brilliant results.

The danger to human beings of contracting rabies through a bite by a rabid dog depends upon many factors.

Doctor Williams, Assistant Director of the Bureau of Laboratories, is authority for the following statement: "After a small bite through clothing, practically no deaths have been reported. After a small bite over areas not richly provided with nerves, only an occasional death has been recorded; after other bites the deaths recorded have gradually increased, according to the site and intensity of the bite, but the average is estimated at 15 per cent. This risk may be very greatly reduced if the wounds can be thoroughly cauterized with concentrated fuming nitric acid within 24 hours after the bite. The specific treatment—the Pasteur vaccine—reduces the risk."

DEATH FROM RABIES IN JANUARY

In the Weekly Bulletin for April 2, 1927, the following report is made of a recent death from rabies in New York City following dog bite:

On January 16, 1927, J. M., male, 29 years old, was bitten severely by a shivering stray dog which he was feeding and nursing back to comfort. The dog promptly ran away. J. M. did not report the bite to the department of health, nor did he consult a physician. The wound healed and J. M. thought no more about it.

On or about March 16, 1927, J. M. began to feel pain and irritation at the site of the bite. These conditions became so aggravated that he went to a physician—still saying nothing about the bite. In spite of sedative treatment, his general condition rapidly grew worse. He became anxious and apprehensive. He was constantly in a highly excitable state; talking, entreating, gesticulating wildly; responding with convulsive starts and jumps to the slightest provocation or to no apparent provocation at all. His voice became husky. After initial difficulty in swallowing water he became unable to swallow anything. The mere sight of water threw him into an uncontrollable condition of frenzy. He was terror-stricken, and therefore dangerous to himself and to others.

He was removed to a hospital on March 21. By this time a breath of air, a touch of the bedclothes, would send him into a series of convulsions terrible in their intensity. He was put under restraint—medicinal and physical—lapsed into unconsciousness, and died March 22, 1927.

Such are the results of the bite of a stray dog. Let us summarize:

Initial excitation, subsequent depression, and ultimate destruction of all the functions of the central nervous system; convulsions of spinal origin brought on by overwhelming and overflowing reflex hyperexcitability and persisting with the utmost violence; paralysis of cerebral origin, beginning with inability to swallow and ending in failure of respiration.

Excitation shown by eye, voice, and gesture; terror; convulsions, constantly increasing in frequency and duration; delirium; paralysis; death.

A necropsy was done in this case. The brain was positive for rabies.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Operation of garbage incinerator plant held to constitute a nuisance.—(New York Supreme Court; Nicoll et al. *v.* President and Trustees of Village of Ossining, 220 N. Y. S. 345; decided March 5, 1927.) An action to abate as a nuisance the operation of a village garbage incinerator plant was brought by persons living in the vicinity of the plant. The court held that the plaintiffs were entitled to the relief asked for, stating as follows:

> The method and manner of operating the plant make it a nuisance to the people residing in its vicinity. Great discomfort is thereby caused to them, and they are prevented from properly enjoying the use of their property.

Erection and maintenance of city sewage disposal plant not enjoined.—(Texas Court of Civil Appeals; Boyd et al. *v.* City of San Angelo, 290 S. W. 833; decided January 19, 1927.) A suit was brought to enjoin the city of San Angelo from erecting and maintaining a sewage disposal plant on a site about 2½ miles from the city limits. The court held, however, that the evidence was insufficient to show that the proposed plant would constitute a nuisance. The court also was of the opinion that the case came clearly within the rule laid down in 29 Cyc. 1231 that "an injunction will not ordinarily be granted, where the erection complained of has a tendency to promote the public convenience, to an extent outweighing the private inconvenience resulting therefrom, where it is necessary to the welfare of the community generally, or where an injunction would cause serious injury to an individual or the community at large, and a relatively slight benefit to the party seeking such relief," and declared that "If operation of such plant, which is essential to the welfare of the community, damages appellants' property, they have their remedy at law, but that question must be left to the test of operation."

Ordinance forbidding retail sale in certain area of fresh meat or sea food except in city market held valid.—(North Carolina Supreme Court; Angelo et al. *v.* City of Winston-Salem et al., 136 S. E. 489; decided January 26, 1927.) The charter of the city of Winston-Salem provided:

> The board of aldermen shall have the power to enact ordinances in such form as they may deem advisable, as follows: * * * To establish, regulate, and control the markets or market buildings; to fix the location of any market building, prescribe the time and manner and place within the city wherein marketable articles, such as meats, perishable vegetables, fish, game, and all other kinds of perishable food or diet shall be bought or sold.

An ordinance of the city, adopted June 18, 1926, made it unlawful from and after December 1, 1926, to sell at retail fresh meats or sea foods at any place within a defined area of the city except in the city market. The area involved extended approximately four-fifths of a mile from the city market in every direction and contained 2.1

square miles. The whole area of the city was 12.33 square miles. The city market was a new building with all modern sanitary equipment and was located as nearly in the center of the city as it was possible for it to be. The rentals for spaces in the market were fixed by the board of aldermen at fair and reasonable rates and efficient management was provided. The market was not operated by the city for revenue or profit but for the purpose of protecting the health and promoting the general welfare of the city, and, assuming the market operated at full capacity, there would still be a deficit to be met out of the general funds of the city. The plaintiffs were 21 market owners handling fresh meat and sea food in the area specified in the ordinance, and they asked that the defendants be permanently restrained from putting into effect the said ordinance. The lower court refused to grant a permanent restraining order and its judgment was affirmed by the supreme court. The following are extracts from the latter court's opinion:

A market house has always been held in this State to be a necessary expense for a municipality. * * *

Whatever we may think of the hardship involved, the ordinance is a valid exercise of police powers vested in the board of aldermen of Winston-Salem under the decisions of this court. * * *

It was a hardship on plaintiffs, but the law in this State and the great weight of authorities in the Nation, under the facts and circumstances of this case, are against the contention of plaintiffs. It is to be noted that the ordinance was passed on June 18, 1926, and went into effect December 1, 1926. The board of aldermen, realizing the hardship on plaintiffs, gave them time to close out their businesses as dealers in fresh meat and sea food, so that, if they desired, they could rent places in the city market and sell fresh meat and sea food or rent places for their businesses outside the four-fifths of a mile area from the city market. We have taken time to consider thoroughly a so far-reaching and important matter affecting the rights of plaintiffs.

From a careful review of the decisions of this State, the United States decisions, and those of other States, and from the facts and circumstances of this case, the forum of plaintiffs was with the governing body of Winston-Salem—the power was given them by legislative enactment.

Use of town jail restricted.—(Louisiana Supreme Court; Board of Health of State of Louisiana *v.* Town of De Quincy et al., 111 So. 789; decided February 28, 1927.) Section 2 of Act 251 of 1918 required that each and every municipal, parish, or State prison, lockup, or camp be of sufficient size and strength to hold and keep securely the prisoners contained there, and that, when used for both sexes and both races, such jail contain at least four separate apartments, one for white men, one for white women, one for colored men, and one for colored women. The State board of health applied for an injunction to restrain the authorities of the town of De Quincy from confining prisoners in the town jail, on the ground that the construction and maintenance of the jail were not in accordance with Act 251 of 1918. The jail contained only two cells, but it was shown

that white and colored people were never placed in the same cell, nor were men and women of either race ever locked up in the same cell. While the jail was an old one, it was, however, safe for the confinement of prisoners and had been kept in as sanitary a condition as the situation and circumstances would permit. The lower court granted the plaintiff's demand to the extent of enjoining the officers of the municipality from using the jail as constructed "for the purpose of confining more than two classes of prisoners, that is, from confining both men and women and people of the white and colored races." This judgment was affirmed by the supreme court, which said:

It will be observed that this requirement [of section 2] of the statute only applies and is only to be enforced where the jail is used for confinement of both sexes and both races. Otherwise, this provision and requirement is not mandatory.

As already stated, it had been the invariable custom of the town authorities not to confine in the same cell prisoners of different sexes or different races.

The trial judge took cognizance of this requirement of the statute and sustained the plaintiff's demand to that extent.

We are of the opinion that the court granted all the relief which the plaintiff board is entitled to, under the evidence and the conditions surrounding the subject matter at issue.

Regulations of State board of health held not legally adopted.—(Alabama Supreme Court; Wheeler *v.* River Falls Power Co., 111 So. 907; decided November 18, 1926.) In an action by plaintiff, a private individual, against the defendant power company on account of the erection by the latter of a dam and the impounding of waters, the validity of regulations of the State board of health governing the impounding of waters was brought into question. By law the medical association of the State was the State board of health. When the State board of health was not in session the State committee of public health had power to adopt and promulgate rules and regulations. The State committee of public health was composed of the governor, who was ex officio a member and its chairman, and the State board of censors of the State medical association. The said committee, including the governor, had a total membership of 11. At the called meeting of the committee which undertook to adopt the regulations in question, four members were present. The absent members, who had been informed of the pendency of the proposed regulations and their contents, unanimously by mail certified their concurrence in the act of adoption. The supreme court held that such regulations did not have the authority of law. The following is quoted from the court's opinion:

There is no provision of statute law whereby a minority of the committee of public health may exercise the legislative power as to minor details of administration committed to it by the legislature, and it is clear that such power, having been committed to the aggregate of the members composing the committee

can not by it be delegated elsewhere, or to any number of individuals acting separately. Of course, a quorum duly met may exercise the power of the committee. But a quorum is such number of the committee as is competent to transact its business, and that, according to the general law of such bodies, is a majority of the committee. The point here is that individual members of the committee, scattered about the State, can not be counted to constitute a quorum of a meeting of the committee which in fact they did not attend. This proposition has been often stated, is clearly restated by the Supreme Court of the United States in United States *v.* Ballin, 144 U. S. 1, 12 S. Ct. 507, 36 L. Ed. 321, and further argument is hardly necessary. The sum of it is that, in the absence of legislative authority to a different effect, a majority of the members must attend any meeting of the committee called for legislative purposes, otherwise there is no committee competent to act, but a majority of those present, when legally met, may bind all the rest. In other words, a major part of the whole is necessary to constitute a quorum, and a majority of the quorum may act.

City held liable for negligence of employee driving garbage truck.—(Michigan Supreme Court; Foss *v.* City of Lansing, 212 N. W. 952; decided April 1, 1927.) An action for damages was brought against the city of Lansing, the plaintiff alleging that a city employee who was driving a garbage truck had negligently run into her automobile, injuring her and damaging the automobile. The city's contention was that the employee was engaged in performing a governmental function when the accident occurred and that, therefore, it was not liable for his negligence. The city, in the disposal of garbage, made some profit, which helped to reduce the cost of disposal. In the trial court there was a directed verdict for the city, but the supreme court reversed the judgment of the lower court, saying:

Whatever the holdings may be elsewhere, we are of the opinion that the rule in Michigan is that, if a municipality is engaged in a governmental work with an incidental profit, it is liable the same as a private corporation would be.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Water Supply and Main Drainage Districts. Clemens Herschel. *Journal of the American Water Works Association*, vol. 16, No. 5, November, 1926, pp. 531–541. (Abstract by Dana E. Kepner.)

Because groups of municipalities or districts have neither credit nor the right to eminent domain until they have been properly constituted by legislative action, problems arise in catering to their water supply and sewerage needs not encountered in dealing with those of the individual city. The Metropolitan Water Board of Massachusetts, created by chapter 488, acts of 1895, has functioned satisfactorily, supplying water in wholesale quantities to some 20 cities and towns. In California, the East Bay Municipal Utilities District, organized in 1924 under the 1921 Municipal Utilities District Act of that State, comprises nine municipalities which are engaged in the construction of a 35 million dollar public water supply.

In New Jersey, attempts since 1884 to organize and efficiently to operate such districts have repeatedly failed. Legislative acts in that State have resulted only in delays of execution, inefficiency, and consequent extravagant costs. The State Water Policy Commission, organized by Joint Resolution 8 of 1925, was

given \$35,000 and instructed to formulate a comprehensive State policy and to draft bills to effectuate its recommendations. The delay of this commission in responding forced the legislature to call a special session in 1926 to consider the recommendations; but, as the commission failed to comply with its instructions, the matter had to be referred to the 1927 legislature.

Elimination of Colloidal Interference by the Use of the Aluminate-Alum Method of Coagulation. A. R. Moberg. Bulletin No. 18, Research Department, Chicago Chemical Co. (Abstract by R. E. Tarbett.)

The sodium aluminate-alum method of coagulation was developed to offset the inhibitory influences of colloids in connection with coagulation of water. The presence of colloids may call for excessive amounts of "alum," with or without alkalies or acids, in order to produce proper coagulation. For the most part, colloids in waters of the United States have been found to be negatively charged, although a few have been found positively charged. Where colloids are negatively charged, the addition of alkalies inhibits the alum reaction and acid accelerates it. The reverse is true of positively charged colloids. A small amount of sodium aluminate in connection with alum treatment appears to offset the inhibitory action of the colloids and allows for smaller alum doses. Too great an excess of sodium hydroxide in the sodium aluminate solution will prevent the phenomenon, and the action will be the same if sodium hydroxide and alum are used.

The use of aluminate-alum with the reduced alum required does not appear to affect the pH values.

More Water for New York City. G. L. Hall. *Journal of the American Water Works Association*, vol. 17, No. 2, February, 1927, pp. 243–246. (Abstract by W. S. Mahlie.)

During the past nine years the water consumption of New York City increased at an average rate of over 31 m. g. d., making it imperative to secure additional supply before 1935, at which time the consumption will have reached the amount available.

In a report from the board of water supplies, Thaddeus Merriman, chief engineer, points out that he has studied all possible sources within 150 miles of the city. The nearest sources available are the east side tributaries of the Hudson River in Dutchess, Columbia, and Rensselaer Counties. It is recommended to develop a series of reservoirs extending from the Croton Reservoir almost to Troy. The aqueduct from these reservoirs will pass through the Croton watershed and make it possible to divert 121 m. g. d. from that source to the Kensico Reservoir. It is also proposed to build an aqueduct from Kensico to Hill View Reservoirs. The water from that proposed development is to be delivered to the city through a pressure tunnel 20 miles long and 17½ feet in diameter. This tunnel will be large enough to deliver the water from the new and additional source and a portion of the Catskill water.

The completion of the plan outlined will make available 1,534 m. g. d., sufficient for the city until about 1947. The construction program will be spread over a period of 15 years. The annual expenditures will vary from \$2,000,000 the first year, increasing to \$50,000,000 the fifth year, and diminishing during the remainder of the construction period.

Calcium and Magnesium Hydrates as Coagulating Agents. Martin E. Flentje, superintendent of filtration, Oklahoma City, Okla. *Journal of the American Water Works Association*, vol. 17, No. 2, February, 1927, pp. 253–260. (Abstract by O. M. Bakke.)

The water used at Oklahoma City is aerated, softened with lime, clarified with iron and alum, settled, carbonated with flue gas, filtered, and chlorinated. For-

merly only sufficient lime was added to reduce the alkalinity to 50 p. p. m., causing little or no reduction of magnesium.

For eight months sufficient lime was added to give excess from 6 to 12 p. p. m. This caused a reduction of from 15 to 20 p. p. m. of magnesium, reduced the amount of coagulants required to nearly one-third, and effected a saving of $3.57 per million gallons. Jar tests, using the settled silt from the raw water with and without magnesium chloride and distilled water, showed that magnesium hydroxide acted strongly as a coagulating agent and was largely responsible for the effect.

Value of excess lime as a sterilizing agent was also considered, with the possibility of reduction of the chlorine dosage. Reduction of *B. coli* with this amount of lime was somewhat disappointing. Sufficient lime was also tried for complete magnesium precipitation and elimination of other coagulants. The increased cost of lime was greater than the cost of the coagulants.

Report of the Bureau of Food Inspection. Report of the Department of Health of the city of Chicago for 1923–1925, pp. 481–537. (Abstract by F. J. Moss.)

The division of food inspection on July 1, 1924, was reorganized by the establishment of three divisions—one charged with sanitary control of food stores, one with inspection and control of shellfish and miscellaneous foods, and the third with milk and dairy inspection. Previous to that date the general sanitary inspection of food establishments was also conducted by the bureau of food inspection, but upon reorganization this work was taken over by the bureau of inspection.

Division of food stores' inspection.—The classes of establishments covered by this division are—restaurants, lunch rooms, ice-cream parlors, candy stores, beverage parlors, drug stores, retail groceries, retail meat markets, retail fish markets, retail bakeries, delicatessen stores, roadside stands, and food-peddling outfits.

A list is given of those things which were stressed as matters of major sanitary importance in the inspection of food stores and establishments. The general working policy is stated as regards cooperation, license approval, and violations, and accounts are given of some of the various activities of the division.

Division of miscellaneous foods and shellfish inspection.—The major work over which this division has control is as follows: Meat inspection, wholesale markets, shellfish, soft-drink factories, canned goods' inspection, retail ice-cream factories, ice inspection, inspection of wholesale confectionery factories, and food poisoning.

A brief account is given of the typhoid fever epidemic which occurred during the latter part of 1923, some of the cases of which were considered as being probably due to infected oysters. An increase in the typhoid-fever rate early in December, 1924, again cast suspicion on shellfish, and a new policy was formulated by the commissioner of health with regard to shipments of shellfish intended for Chicago. Other work accomplished is also stated quite fully, and tables and charts are given in a number of cases.

Division of milk and dairy inspection.—The work of this division is divided into two main sections, namely, country dairy inspection and city milk inspection.

During the period covered by this report numerous improvements were brought about in connection with the production of raw milk, the transportation of raw milk, pasteurization, and the dispensing of milk in restaurants and similar places. On December 23, 1925, the city milk ordinance was amended so as to permit the sale of milk in the city of Chicago only from cattle which had been declared free from disease upon examination. The amended paragraphs of this ordinance are given and also the rules and regulations governing the manufacture of ice-cream which went into effect on July 1, 1925. A detailed record of the various activities of the division is given, including many charts and tables,

giving such information as milk consumption, chemical and bacterial analyses of milk samples, bacterial analyses of ice cream samples, etc.

Smoke Abatement, Its Effects and Its Limitations. H. B. Meller. Paper presented at annual meeting of the American Society of Mechanical Engineers, December 6, 1926. 9 pages. (Abstract by Leonard Greenburg.)

This rather complete paper describes the problem of smoke abatement in some detail, making special reference to the development of the problem and its solution in Pittsburgh by way of example. The Pittsburgh ordinance is described in its bearing on the problem and reference is made to the studies conducted at the Mellon Institute along these lines.

The importance of draft, combustion space, and secondary air is treated at some length, for these have important bearing on the smokelessness of combustion; but so detailed is the discussion on these points that a summary here is impossible. The special problems of manufacturing plants and railroads are discussed, for these contribute very largely to the smoke problem. Each offending furnace is treated as a separate problem, which is settled by the city and plant officials in conference. That the railroad companies are cooperating in the solution of the problem is at once evident when one realizes that these companies employ twenty inspectors, whereas the city of Pittsburgh employs only four. The methods used in making smokeless fires in the locomotives are described.

The results of the smoke abatement campaign in Pittsburgh have been to decrease the amount of visible smoke in the atmosphere. It is estimated that 80 per cent of the dense smoke has been eliminated. A second soot fall survey was conducted over a period of eleven months. The interesting thing about this study is that it shows a great portion of the dense smoke to have been prevented; but, in spite of this, the quantity of solid matter deposited has been greatly increased, there having been an increase of 39 per cent in the insoluble matter deposited per square mile per month.

This interesting report closes by pointing out that in Pittsburgh but one-fourth of one per cent of the solid deposit consists of tar, which is the criterion of black smoke. Yet this is the only portion of the combustion products which inspection supervises and checks. The author apparently forgets that if the black smoke is reduced in amount, so, also, is the other material arising with it. Nevertheless, the emphasis placed on the harmful gases and solids which are blown from the stacks, even though light in color and hence within the regulations, serves to bring an important problem to the front.

Advances in Sewage Purification. Dr. K. Imhoff. Fortschritte der Abwasserreinigung. Second edition, 1926. Published by Carl Heymanns, Berlin, Germany. 136 pages. (Abstract by J. K. Hoskins.)

The treatment of the subject is divided as follows: (1) Processes for removal of sludge from the sewage and sludge handling; (2) processes for purification of the liquid sewage; and (3) miscellaneous topics, such as industrial wastes, house disposal systems, costs, bibliography and index.

The first section of the book, dealing with sludge separation and disposal, discusses (*a*) new sewage screens in America; (*b*) new Emscher (Imhoff) tank installations; (*c*) two-story settling tanks, or completely separate sludge digestion tanks; (*d*) flowing through digestion tanks; (*e*) trickling basins and partial dewatering; (*f*) ponding on land; (*g*) stream clarification applications; (*h*) storm water tanks; (*i*) recovery of gas from digestion tanks; (*j*) sludge lagoons; and (*k*) agricultural value of sludge.

Discussions of topics (*a*) and (*b*) are largely concerned with American practice. About 600 American cities and communities have installed Imhoff tanks for sewage treatment. Under (*c*) the advantages and disadvantages of the two methods of sludge digestion are compared and their relative importance is con-

sidered. Heat losses in the separate method result in unfavorable digestion progress, but may be overcome if the sludge chamber of the Emscher tank is divided into two parts, one of which is below the sedimentation chamber and the other, or digestion compartment, is adjacent to it.

Sickerbecken (trickling basins) are described as shallow basins with a layer of under-drained filtering material through which the liquid sewage is withdrawn after deposition of sludge has taken place by plain sedimentation of the sewage slowly flowing through. Such basins are constructed in groups so that some are in use, while others are being drained and sludge is drying and being removed. Their design and operating features are described in some detail.

Ponding (*f*) and stream clarification processes (*g*) are methods employed in special cases for providing plain sedimentation and deposition of sludge by the formation of pools on land or in stream channels, respectively, and are of limited application. Storm water tanks (*h*) provide sedimentation for flows in excess of the general volume of sewage flow of combined sewers and where complete treatment is not necessary.

Methods of gas recovery from digesting sludge (*i*) are discussed. The average amount of gas obtained from Emscher tanks is 8 liters per day, or 3 cubic meters per year per person contributing sewage. The gas is composed of the following: Methane, 80–85 per cent; carbonic acid, 7–20 per cent; nitrogen, 0–8 per cent; and hydrogen, 0 per cent.

The use of sludge lagoons (*j*) in America and Germany is briefly touched upon and the disadvantages of the method are clearly stated. Digested sludge is recommended for agricultural purposes (*k*) for reasons given. The use of raw sludge has numerous disadvantages which are enumerated.

Progress in Sewage Disposal. Dr. K. Imhoff. Fortschritte der Abwasserreinigung. Second edition, 1926. Published by Carl Heymanns, Berlin, Germany. Pp. 106–116. (Abstract by A. L. Dopmeyer.)

Industrial wastes.—In the treatment of industrial wastes not much progress has been made, and many of the difficulties encountered in treating such wastes are still being overcome by mixing the wastes with domestic sewage.

The common methods of removing sludge from tanks are described, including mechanical devices, such as the Fidler sludge remover, the Dorr thickener, and a suction dredge manufactured by a German firm, which is used for the same purpose. For disposing of sludge, the methods of placing it on porous beds and of lagooning are referred to.

Industrial wastes containing organic matter can usually be handled the same as domestic sewage, particularly wastes from the foodstuff industries. In this connection, as well as in the treatment of phenol wastes, the activated sludge process is stated as coming more and more into use.

According to the author, in the treatment of industrial wastes there is an increasing endeavor to make use of the effluent from the treatment plant, in the industry; and oftentimes in such cases the expensive treatment plant proves economical in the end.

Home sewage disposal.—The question of home sewage disposal, which was thought at one time to have been settled, became important again during the war, but to-day it is again realized that all houses should be connected to a public sewerage system when at all possible. A brief outline of the American practice in this respect is given. In Germany, pit privies are permitted, provided that the house is so located with respect to the privy that the drainage is away from the house. Small tanks of the Imhoff type are used for some houses which are connected to a water supply. The particular undesirable feature of this tank has been found to be its small size, which is considered the main reason for its neglect. There are a large number of medium and small sized towns in Germany which

have both public sewerage systems and many individual appurtenances, the latter consisting mainly of pits with illegal overflows into the city streets. In one case it was found that the sewage from a pit was pumped regularly each night into the street. In another case it was pumped into the street just before an expected rain. For these reasons it is believed that the individual plants have not contributed to the reduction of pollution of streams, but that more pollution is received into the stream in this way than if a public sewerage system is used throughout, with the simplest kind of treatment. In Leipzig and other large cities, in spite of the fact that a free sewerage system is available, there is still much collection and disposal of sewage on the premises, a common practice of removal being by trucks, about once a year.

It is suggested by the author that, instead of enforcing the law prohibiting the discharge of sewage into the streets, all owners of houses be forced to connect the house to the public sewerage system wherever possible.

Design and costs of disposal plants.—From the standpoint of the comfort of the residents in the vicinity of the disposal plant, it is desirable that there be no odor. Both in the United States and in Germany, a treatment plant is now demanded which does not give off offensive odors. For this reason, the septic tank, except for small installations, is coming into disuse.

From a health standpoint, the effectiveness of a treatment plant can be measured by the extent to which the danger of disease transmission is reduced. The content of putrescible organic matter is mentioned as being the most important factor for consideration, and the ordinary methods for preliminary and final treatment are briefly outlined.

A per capita comparison of initial costs, operating costs, etc., of a number of treatment processes is made by listing six comparable processes in a table. Such processes, where the costs are dependent in large measure on local conditions, are not mentioned; nor are those which are considered out of date or not used in Germany on account of their high cost.

The Jamaica Sewage Disposal Plant, the Second Largest Sewage Screening Plant in the World. Anon. *American City,* vol. 36, No. 3, March, 1927, pp. 331–334. (Abstract by Charles R. Cox.)

The Jamaica sewage screening plant was recently completed to screen and chlorinate the sewage from an area of 24,000 acres in the borough of Queens of New York City. The present plant is the first unit of a series of three, which will have a combined capacity of 240 m. g. d. The present plant consists of grit chambers, two sanitation disk screens, sewage pumps, chlorination equipment, and outfall sewer to Bergen Creek and Jamaica Bay.

The sewage passes through a bar screen into a four-compartment grit chamber 40 feet wide by 96 feet long and 33 feet deep. A clam-shell bucket is used in removing grit. The two screens may be used together or singly. They are 26 feet in diameter and are made up of sections made of numerous monel metal strips arranged radially in curves to conform to the path of the brushes. These strips are $\frac{3}{16}$ inch wide, $\frac{1}{32}$ inch thick, and are set on edge $\frac{3}{32}$ of an inch apart. The free area of the screen is 69 per cent of the total area. The pumping equipment consists of 4 main, motor-driven, horizontal, single-suction, mixed-flow, centrifugal pumps of 120 m. g. d. capacity. The chlorination equipment consists of 5 Wallace & Tiernan automatic, solution feed machines with sufficient capacity to treat 10 to 80 m. g. d. Automatic control is secured by the use of solenoid-operated valves connected with the motor circuits.

The grit and screenings are elevated by mechanical means to storage hoppers, from which the material can be discharged into trucks and hauled away and dumped. Eventually the screenings will be hauled or conveyed to a municipal incinerator adjacent to the sewage disposal plant.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for October, 1926

Reports for the month of October, 1926, were received from 30 institutions for the care of the feeble-minded.

The following tables give a summary and analysis of the reports:

Movement of patient population in 30 institutions for the feeble-minded, October, 1926

	Male	Female	Total
Number of institutions included:			
Public			29
Private			1
Total			30
Patients on books Oct 1, 1926:			
In institutions	11,892	11,623	23,515
On temporary leave	2,075	1,571	3,646
Total	13,967	13,194	27,161
Admitted during October:			
First admissions	171	126	297
Readmissions	5	5	10
Admitted by transfer	0	44	44
Not accounted for	1	1	2
Total received during October	177	176	353
Total on books during month	14,144	13.370	27,514
Discharged or placed on indefinite parole during October	46	34	80
Transferred	1	45	46
Died during October	28	26	54
Total discharged, transferred, and died during October	75	105	180
Patients on books Oct. 31, 1926:			
In institutions	12,037	11,730	23,767
On temporary leave	2,032	1,535	3,567
Total	14,069	13,265	27,334

Analysis of movement of patient population of 30 institutions for the feeble-minded, October, 1926

	Male	Female	Total
Per cent change in number of patients during October:			
Total (increase)	0.73	0.54	0.64
In institutions (increase)	1.22	.92	1.07
On temporary leave (decrease)	2.07	2.29	2.17
Per cent of total patients absent on leave:			
Oct. 1	14.85	11.91	13.42
Oct. 31	14.44	11.57	13.05
Per cent of total admissions (excluding transfers and not accounted for) which were:			
First admissions	97.16	96.18	96.74
Readmissions	2.84	3.82	3.26
Per cent of total patients discharged during October (based on average number for the month)	.33	.26	.29
Male patients per 1,000 females, Oct. 31			1,061
Deaths per 1,000 patients under treatment (annual basis)	25.32	22.89	23.12

Examination for Entrance Into the Regular Corps of the United States Public Health Service

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

Washington, D. C.	August 8, 1927
Chicago, Ill.	Do.
New Orleans, La.	Do.
San Francisco, Calif.	Do.

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

DEATHS DURING WEEK ENDED MAY 7, 1927

Summary of information received by telegraph from industrial insurance companies for week ended May 7, 1927, and corresponding week of 1926. (From the Weekly Health Index, May 11, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 7, 1927	Corresponding week 1926
Policies in force	65, 776, 147	64, 290, 279
Number of death claims	13, 623	14, 240
Death claims per 1,000 policies in force, annual rate	10. 8	11. 5

Deaths from all causes in certain large cities of the United States during the week ended May 7, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 11, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 7, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended May 7, 1927 [2]
	Total deaths	Death rate [1]		Week ended May 7, 1927	Corresponding week, 1926	
Total (68 cities)	7,473	13.2	[3] 14.3	836	[5] 655	[4] 69
Akron	50			9	8	97
Albany [5]	43	15.7	22.3	6	5	125
Atlanta	58			5	13	
White	23			3	6	
Colored	25	(6)		2	7	
Baltimore [5]	242	15.4	15.8	18	22	56
White	189		14.4	10	16	39
Colored	53	(6)	24.1	8	6	124
Birmingham	59	14.3	20.3	9	20	
White	27		18.3	3	12	
Colored	32	(6)	23.2	6	8	
Boston	213	14.0	18.0	26	42	73
Bridgeport	27			3	8	56
Buffalo	150	14.2	14.5	20	22	84
Cambridge	17	7.1	9.8	2	0	36
Camden	31	12.2	12.3	4	2	69
Canton	24	11.1	12.8	1	5	24
Chicago [5]	720	12.1	13.7	88	100	76
Cincinnati	138	17.5	17.4	6	17	37
Cleveland	179	9.5	11.8	13	32	34
Columbus	84	15.1	13.4	10	7	93
Dallas	49	12.2	14.4	7	7	
White	43		11.9	7	5	
Colored	6	(6)	30.9	0	2	
Dayton	47	13.6	15.6	4	5	66
Denver	74	13.3	11.9	6	9	
Des Moines	30	10.5	15.0	3	3	60
Detroit	305	11.9	15.4	40	77	63
Duluth	21	9.5	9.2	3	1	65
El Paso	28	12.8	15.8	8	9	
Erie	22			3	6	59
Fall River [5]	34	13.3	10.3	5	3	88
Flint	28	10.2	10.4	4	3	65
Fort Worth	28	8.9	9.5	5	0	
White	20		7.8	5	0	
Colored	8	(6)	22.0	0	0	
Grand Rapids	31	10.2	16.0	4	6	59
Houston	39			5	4	
White	22			1	4	
Colored	17	(6)		4	0	
Indianapolis	113	15.8	13.5	7	8	55
White	93		13.4	5	7	45
Colored	20	(6)	14.2	2	1	122
Jersey City	66	10.7	13.9	9	8	67
Kansas City, Kans	29	12.9	8.5	1	3	19
White	20		7.0	0	3	0
Colored	9	(6)	15.3	1	0	152
Kansas City, Mo	89	12.1	13.3	10	1	
Knoxville	24	12.3		1		
White	17			0		
Colored	7	(6)		1		
Los Angeles	241			26	22	74
Louisville	85	13.9	14.8	5	6	43
White	58		12.4	3	5	29
Colored	27	(6)	27.7	2	1	140
Lowell	28	13.2	18.0	2	9	39
Lynn	28	13.9	14.0	0	2	0
Memphis	65	18.9	19.1	8	8	
White	28		14.6	4	4	
Colored	37	(6)	27.3	4	4	
Milwaukee	133	13.2	14.6	19	15	89
Minneapolis	89	10.5	15.0	7	16	39
Nashville [5]	40	15.1	19.8	4	4	
White	24		13.3	3	3	
Colored	16	(6)	36.1	1	1	
New Bedford	23	10.0	16.6	3	13	52
New Haven	42	11.8	12.6	3	4	42

(See footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended May 7, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 11, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 7, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended May 7, 1927 [2]
	Total deaths	Death rate [1]		Week ended May 7, 1927	Corresponding week, 1926	
New Orleans	153	18.8	19.8	18	7	
White	88		15.3	14	2	
Colored	65	(6)	32.5	4	5	
New York	1,536	13.4	13.4	193	168	80
Bronx Borough	195	11.0	9.2	18	11	57
Brooklyn Borough	516	11.8	12 0	74	72	77
Manhattan Borough	633	18.2	18.6	76	74	89
Queens Borough	149	9.6	9.6	20	8	85
Richmond Borough	43	15.3	15.0	5	3	93
Newark, N. J	96	10.7	13.1	9	13	45
Oakland	70	13.7	7.0	7	4	82
Oklahoma City	22			1	2	
Omaha	55	13.1	16.4	3	10	33
Paterson	26	9.4	15.0	5	5	88
Philadelphia	485	12 4	15.0	38	72	51
Pittsburgh	213	17.3	17.2	44	18	154
Portland, Oreg	76			3	2	32
Providence	81	15.0	14.2	12	11	102
Richmond	46	12.5	16.0	5	12	66
White	24		13.2	2	8	40
Colored	22	(6)	22.8	3	4	114
Rochester	93	15.0	13.5	18	7	151
St. Louis	199	12.4	14.4	17	18	
St. Paul	51	10.6	14.5	5	1	45
Salt Lake City [5]	36	13.8	14.1	0	6	0
San Antonio	77	19.0	15.8	21	14	
San Diego	45	20.4	15.2	2	4	43
San Francisco	144	13.0	13.5	5	10	31
Schenectady	16	9.0	7.8	2	1	60
Seattle	74			6	3	63
Somerville	26	13.3	9.9	3	3	108
Spokane	26	12.4	13.9	4	5	100
Springfield, Mass	44	15.6	11.1	2	2	31
Syracuse	51	13.5	17.5	5	8	64
Tacoma	28	13.6	15.7	1	1	24
Toledo	84	14.4	13.3	8	15	77
Trenton	43	16.4	15.6	3	5	52
Utica	22	11.1	18.7	1	1	23
Washington, D. C	158	15.3	15.3	16	17	93
White	124		12.8	9	12	[illegible]
Colored	34	(6)	22.6	7	5	[illegible]
Waterbury	20			4	6	94
Wilmington, Del	27	11.2	10.1	4	5	99
Worcester	38	10.2	14.6	6	6	72
Yonkers	26	11.4	9.9	2	6	45
Youngstown	49	15.1	14.2	6	6	84

1 Annual rate per 1,000 population.
2 Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
3 Data for 67 cities.
4 Data for 63 cities.
5 Deaths for week ended Friday, May 6, 1927.
6 In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended May 14, 1927

DIPHTHERIA

	Cases
Alabama	17
Arizona	3
California	99
Colorado	10
Connecticut	20
Delaware	2
Florida	12
Georgia	6
Idaho	2
Illinois	110
Indiana	18
Kansas	15
Louisiana	21
Maine	5
Maryland [1]	36
Massachusetts	84
Michigan	104
Minnesota	37
Mississippi	5
Missouri	47
Montana	3
Nebraska	6
New Jersey	103
New Mexico	10
New York [2]	108
North Carolina	10
Oklahoma [3]	3
Oregon	9
Pennsylvania	164
Rhode Island	3
South Carolina	14
South Dakota	1
Tennessee	5
Utah [1]	7
Washington	9
West Virginia	8
Wisconsin	28
Wyoming	1

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.

INFLUENZA

	Cases
Alabama	21
Arkansas	52
California	20
Connecticut	3
Florida	18
Georgia	73
Illinois	17
Indiana	25
Kansas	3
Louisiana	14
Maine	32
Maryland [1]	19
Massachusetts	10
Michigan	4
Minnesota	3
Montana	1
New Jersey	10
Oklahoma [3]	37
Oregon	17
South Carolina	941
South Dakota	2
Tennessee	36
West Virginia	5
Wisconsin	69

MEASLES

	Cases
Alabama	255
Arizona	147
Arkansas	40
California	1,323
Colorado	259
Connecticut	58
Delaware	5
Florida	104
Georgia	83
Idaho	25
Illinois	1,155
Indiana	187

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MEASLES—continued

	Cases
Kansas	1,029
Louisiana	53
Maine	119
Maryland [1]	26
Massachusetts	392
Michigan	259
Minnesota	168
Montana	19
Nebraska	255
New Jersey	111
New Mexico	211
New York [2]	891
North Carolina	1,987
Oklahoma [3]	326
Oregon	261
Pennsylvania	692
Rhode Island	2
South Carolina	411
South Dakota	71
Tennessee	85
Utah [1]	24
Vermont	130
Washington	338
West Virginia	185
Wisconsin	457
Wyoming	108

MENINGOCOCCUS MENINGITIS

California	3
Illinois	11
Maryland [1]	1
Massachusetts	2
Michigan	2
Minnesota	1
Montana	2
New Jersey	1
New York [2]	2
North Carolina	1
Oklahoma [3]	1
Oregon	1
Pennsylvania	2
Tennessee	1
Washington	3
Wisconsin	13

POLIOMYELITIS

Arizona	1
California	5
Florida	1
Georgia	1
Illinois	2
Massachusetts	2
Mississippi	1
New York [2]	2
Pennsylvania	1
South Carolina	1
Wisconsin	3

SCARLET FEVER

	Cases
Alabama	5
Arizona	34
Arkansas	6
California	213
Colorado	153
Connecticut	105
Delaware	4
Florida	5
Georgia	11
Idaho	8
Illinois	247
Indiana	154
Kansas	104
Louisiana	4
Maine	45
Maryland [1]	56
Massachusetts	421
Michigan	279
Minnesota	184
Mississippi	1
Missouri	91
Montana	19
Nebraska	31
New Jersey	312
New Mexico	11
New York [2]	290
North Carolina	11
Oklahoma [3]	25
Oregon	22
Pennsylvania	559
Rhode Island	14
South Carolina	11
South Dakota	52
Tennessee	23
Utah [1]	28
Vermont	7
Washington	40
West Virginia	30
Wisconsin	166
Wyoming	23

SMALLPOX

Alabama	20
Arizona	1
California	34
Colorado	13
Florida	51
Georgia	27
Idaho	6
Illinois	26
Indiana	134
Kansas	15
Louisiana	[4] 6
Michigan	42
Minnesota	1
Mississippi	45
Missouri	19
Montana	16
Nebraska	10
New Mexico	8
New York [2]	13
North Carolina	33
Oklahoma [3]	31
Oregon	14
South Carolina	21

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.
[4] Twenty additional cases reported unofficially.

SMALLPOX—continued

	Cases
South Dakota	13
Tennessee	6
Utah [1]	1
Virginia	4
Washington	41
West Virginia	26
Wisconsin	13
Wyoming	2

TYPHOID FEVER

	Cases
Alabama	24
Arizona	2
Arkansas	30
California	6
Florida	21
Georgia	24
Illinois	15
Indiana	4
Kansas	2
Louisiana	16

TYPHOID FEVER—continued

	Cases
Maryland [1]	5
Massachusetts	6
Michigan	5
Minnesota	1
Mississippi	12
Missouri	7
Nebraska	1
New Jersey	4
New Mexico	7
New York [2]	7
North Carolina	11
Oklahoma [3]	18
Oregon	3
Pennsylvania	16
South Carolina	42
Tennessee	18
Washington	2
West Virginia	1
Wisconsin	6

Reports for Week Ended May 7, 1927

DIPHTHERIA

	Cases
District of Columbia	20
Georgia	9
Nebraska	3
North Dakota	2

INFLUENZA

	Cases
District of Columbia	2
Georgia	136

MEASLES

	Cases
District of Columbia	12
Georgia	200
Nebraska	391
North Dakota	111

SCARLET FEVER

	Cases
District of Columbia	24
Georgia	17
Nebraska	34
North Dakota	32

SMALLPOX

	Cases
Georgia	24
Nebraska	6

TYPHOID FEVER

	Cases
District of Columbia	1
Georgia	15
Nebraska	1
North Dakota	1

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
January, 1927										
New Mexico	0	14	25		70		1	111	7	5
March, 1927										
Hawaii Territory	1	36	75		300		3	24	0	6
April, 1927										
Arizona	0	13	5		370		3	67	4	3
Connecticut	3	115	21	1	326		2	424	0	2
Florida	5	87	60	22	897	25	3	50	307	76
Nebraska	2	25	25		1,855		0	314	124	6
Vermont	0	7			566		0	47	0	1

January, 1927

New Mexico:	Cases
Chicken pox	130
Conjunctivitis	20
German measles	24
Mumps	62
Puerperal septicemia	1
Rabies in animals	2
Trachoma	1
Whooping cough	32

March, 1927

Hawaii Territory:	Cases
Chicken pox	27
Conjunctivitis	35
Dysentery (amebic)	2
Leprosy	3
Tetanus	1
Trachoma	17
Whooping cough	40

April, 1927

	Cases
Anthrax:	
Connecticut	1
Chicken pox:	
Arizona	73
Connecticut	285
Florida	243
Nebraska	252
Vermont	133
Conjunctivitis:	
Connecticut	8
Dengue:	
Florida	1
Dysentery:	
Florida	11

April, 1927—Continued

	Cases
German measles:	
Nebraska	362
Hookworm disease:	
Florida	242
Lethargic encephalitis:	
Connecticut	4
Florida	1
Malta fever:	
Arizona	1
Mumps:	
Arizona	17
Connecticut	167
Florida	66
Nebraska	256
Vermont	347
Paratyphoid fever:	
Connecticut	2
Rabies in animals:	
Connecticut	6
Vermont	4
Septic sore throat:	
Connecticut	11
Nebraska	2
Tetanus:	
Connecticut	1
Florida	17
Trachoma:	
Arizona	2
Whooping cough:	
Arizona	11
Connecticut	120
Florida	129
Nebraska	64
Vermont	84

Number of Cases of Certain Communicable Diseases Reported for the Month of February, 1927, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	222	161	718	101	70	224	328	67	205
Arizona	108	12	76	9	94	2	83	5	22
Arkansas	209	24	80	210	49	22	[1] 30	23	198
California	3,092	601	11,514	991	1,156	110	720	24	459
Colorado [2]									
Connecticut	438	128	408	120	438	0	139	4	179
Delaware [2]									
District of Columbia	262	104	16	-------	78	3	116	3	72
Florida	207	121	272	48	65	281	70	31	55
Georgia	266	90	553	167	84	442	81	28	139
Idaho	57	6	1,312	52	163	40	[1] 3	6	34
Illinois	1,630	532	8,469	1,623	1,584	118	1,175	61	896
Indiana	630	172	933	8	1,342	586	138	13	247
Iowa	235	101	2,545	62	339	38	52	-------	52
Kansas	694	79	2,458	242	763	197	155	8	296
Kentucky [3]									
Louisiana	78	89	506	54	53	21	[1] 100	32	87
Maine	201	9	735	40	105	0	22	10	188
Maryland	630	208	112	116	341	1	217	41	420
Massachusetts	1,244	424	855	1,306	2,129	0	585	26	543
Michigan	1,123	485	956	461	1,424	180	342	31	532
Minnesota	656	162	1,300	-------	1,136	37	179	17	107
Mississippi	842	56	2,323	639	101	35	297	52	1,595
Missouri	524	229	1,033	212	693	79	182	27	190
Montana	122	28	308	73	444	37	28	1	6
Nebraska	254	20	676	202	266	65	44	8	123
Nevada [4]									
New Hampshire	-------	3	-------	-------	53	0	-------	0	-------
New Jersey	1,278	442	218	-------	1,432	0	450	20	990
New Mexico [2]									
New York	3,153	1,583	3,343	3,303	4,135	31	1,642	82	1,618
North Carolina	865	123	1,427	-------	176	259	-------	21	2,612
North Dakota	53	10	408	29	302	18	10	6	12
Ohio	1,859	692	604	431	2,063	206	668	23	1,039
Oklahoma [5]	226	85	796	93	201	166	58	49	64
Oregon	174	63	354	101	214	120	61	20	58
Pennsylvania	3,390	806	3,721	1,449	2,742	1	490	87	1,231
Rhode Island	126	48	5	54	116	0	40	1	41
South Carolina	427	181	93	3	46	67	211	31	431
South Dakota	107	14	1,103	24	418	23	8	7	38
Tennessee	390	72	775	33	213	71	131	43	385
Texas [2]									
Utah [4]									
Vermont	146	5	367	191	-------	0	[1] 10	6	177
Virginia	1,026	146	2,414	-------	224	162	[1] 99	22	1,844
Washington	443	103	974	369	492	211	135	8	73
West Virginia	391	107	632	-------	254	97	46	72	477
Wisconsin	1,107	171	3,099	910	929	58	145	10	586
Wyoming	43	7	938	42	103	1	-------	1	2

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of February, 1927

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	1.14	0.82	3.67	0.52	0.36	1.15	1.68	0.34	1.05
Arizona	3.07	.34	2.16	.26	2.67	.06	2.36	.14	.62
Arkansas	1.42	.16	.54	1.42	.33	.15	[1].20	.16	1.34
California	9.09	1.77	33.86	2.91	3.40	.32	2.12	.07	1.35
Colorado [2]	----	----	----	----	----	----	----	----	----
Connecticut	3.49	1.02	3.25	.96	3.49	.00	1.11	.03	1.43
Delaware [2]	----	----	----	----	----	----	----	----	----
District of Columbia	6.32	2.51	.39	----	1.88	.07	2.80	.07	1.74
Florida	1.08	1.16	2.60	.46	.62	2.69	.67	.30	.53
Georgia	1.09	.37	2.27	.44	.35	1.82	.33	.12	.57
Idaho	1.39	.15	32.03	1.27	3.98	.98	[1].07	.15	.83
Illinois	2.91	.95	15.13	2.90	2.83	.21	2.10	.11	1.60
Indiana	2.61	.71	3.86	.03	5.55	2.42	.57	.05	1.02
Iowa	1.26	.54	13.68	.33	1.82	.20	.28	----	.28
Kansas	4.95	.53	17.53	1.73	5.44	1.40	1.11	.06	2.11
Kentucky [3]	----	----	----	----	----	----	----	----	----
Louisiana	.53	.60	3.41	.36	.36	.14	[1].67	.22	.59
Maine	3.30	.15	12.08	.66	1.73	.00	.36	.16	3.09
Maryland	5.14	1.70	.91	.95	2.73	.01	1.77	.33	3.43
Massachusetts	3.82	1.30	2.63	4.01	6.54	.00	1.80	.08	1.67
Michigan	3.26	1.41	2.78	1.34	4.13	.52	.99	.09	1.54
Minnesota	3.18	.79	6.31	----	5.51	.18	.87	.08	.52
Mississippi	6.13	.41	16.91	4.65	.74	.25	2.16	.39	11.61
Missouri	1.95	.85	3.84	.79	2.57	.29	.68	.10	.71
Montana	2.23	.51	5.62	1.33	8.11	.68	.51	.02	.11
Nebraska	2.37	.19	6.31	1.89	2.48	.61	.41	.07	1.15
Nevada [4]	----	----	----	----	----	----	----	----	----
New Hampshire	----	.09	----	----	1.52	.00	----	.00	----
New Jersey	4.44	1.54	.76	----	4.98	.00	1.56	.07	3.44
New Mexico [2]	----	----	----	----	----	----	----	----	----
New York	3.60	1.81	3.81	3.77	4.72	.04	1.87	.09	1.85
North Carolina	3.89	.55	6.42	----	.79	1.17	----	.09	11.75
North Dakota	1.08	.20	9.51	.59	6.14	.37	.20	.12	.24
Ohio	3.61	1.34	1.17	.84	4.01	.40	1.30	.04	2.02
Oklahoma [5]	1.39	.52	4.89	.57	1.23	1.02	.36	.30	.39
Oregon	2.55	.92	5.19	1.48	3.13	1.70	.89	.29	.85
Pennsylvania	4.54	1.08	4.90	1.94	3.67	.00	.66	.12	1.65
Rhode Island	2.33	.89	.09	1.00	2.15	.00	.74	.02	.76
South Carolina	3.02	1.28	.66	.02	.32	.47	1.49	.22	3.05
South Dakota	2.00	.26	20.66	.45	7.83	.43	.15	.13	.71
Tennessee	2.05	.28	4.07	.17	1.12	.37	.69	.23	2.02
Texas [2]	----	----	----	----	----	----	----	----	----
Utah [3]	----	----	----	----	----	----	----	----	----
Vermont	5.40	.18	13.57	7.06	----	.00	[1].37	.22	6.55
Virginia	5.25	.75	12.36	----	1.15	.83	[1].51	.11	9.44
Washington	3.70	.86	8.13	3.08	4.11	1.76	1.13	.07	.61
West Virginia	3.01	.82	4.86	----	1.95	.75	.35	.55	3.67
Wisconsin	4.94	.76	13.84	4.06	4.15	.26	.65	.04	2.62
Wyoming	2.38	.38	.74	2.27	5.57	.05	----	.05	.11

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Reports received annually.
[5] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country, and have an estimated aggregate population of more than 30,900,000. The estimated population of the 95 cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 30, 1927, and May 1, 1926

	1927	1926	Estimated expectancy		1927	1926	Estimated expectancy
Cases reported				*Cases reported*—Contd.			
Diphtheria:				Typhoid fever:			
41 States	1,517	1,211		41 States	200	209	
101 cities	1,018	641	851	101 cities	50	54	53
Measles:				*Deaths reported*			
39 States	14,562	24,966					
101 cities	3,800	9,971		Influenza and pneumonia.			
Poliomyelitis:							
41 States	19	18		95 cities	941	1,198	
Scarlet fever:				Smallpox:			
41 States	4,533	4,153		95 cities	0	3	
101 cities	2,005	1,707	1,189	New Orleans	0	1	
Smallpox:				Los Angeles	0	1	
41 States	720	713		San Francisco	0	1	
101 cities	125	153	128				

City reports for week ended April 30, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid ever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	4	1	0	0	1	1	3	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	7	0	3
Manchester	83,097	0	2	0	0	0	0	0	2
Vermont:									
Barre	10,008	1	0	0	0	0	0	2	0
Burlington	24,089	1	1	0	0	0	11	2	0
Massachusetts:									
Boston	779,620	73	51	19	1	0	108	119	40
Fall River	128,993	5	3	2	1	0	0	2	1
Springfield	142,065	3	2	4	0	0	8	5	7
Worcester	190,757	32	4	2	2	0	0	6	7
Rhode Island:									
Pawtucket	69,760	0	1	1	0	0	0	0	2
Providence	267,918	0	10	3	0	2	2	0	5
Connecticut:									
Bridgeport	(1)	0	5	7	1	0	9	2	6
Hartford	160,197	5	6	1	0	0	2	8	4
New Haven	178,927	9	2	2	0	0	2	8	3
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	22	9	10		3	7	18	16
New York	5,873,356	277	219	348	45	19	59	358	200
Rochester	316,786	11	9	5		1	13	6	7
Syracuse	182,003	22	5	0		0	189	19	6

[1] No estimate made.

City reports for week ended April 30, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC—con.									
New Jersey:									
Camden	128, 642	3	4	32	0	1	4	3	2
Newark	452, 513	83	15	12	7	2	2	78	12
Trenton	132, 020	1	3	2	1	0	0	2	8
Pennsylvania:									
Philadelphia	1, 979, 364	96	71	57	--------	9	47	190	59
Pittsburgh	631, 563	83	16	25	--------	7	106	5	29
Reading	112, 707	9	2	1	--------	0	42	60	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409, 333	7	7	6	0	2	3	14	13
Cleveland	936, 485	94	22	41	0	0	3	59	17
Columbus	279, 836	23	3	6	0	0	7	1	2
Toledo	287, 380	72	4	1	0	0	39	14	4
Indiana:									
Fort Wayne	97, 846	9	2	5	0	0	16	0	1
Indianapolis	358, 819	34	4	3	0	3	18	52	9
South Bend	80, 091	3	1	1	0	0	23	0	1
Terre Haute	71, 071	1	1	0	0	0	14	0	1
Illinois:									
Chicago	2, 995, 239	56	77	66	14	8	679	105	77
Peoria	81, 564	8	1	0	0	0	9	3	0
Springfield	63, 923	3	0	0	0	0	11	0	2
Michigan:									
Detroit	1, 245, 824	86	46	52	4	1	14	172	39
Flint	130, 316	24	3	4	0	0	13	5	9
Grand Rapids	153, 698	7	4	0	0	1	11	0	2
Wisconsin:									
Kenosha	50, 891	12	1	0	0	0	12	58	1
Madison	46, 385	4	0	1	0	0	11	4	1
Milwaukee	509, 192	115	11	18	0	0	126	111	14
Racine	67, 707	6	2	3	0	0	5	13	1
Superior	39, 671	0	0	0	0	0	1	0	3
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110, 502	6	1	0	0	0	19	1	2
Minneapolis	425, 435	93	15	4	0	2	9	0	4
St. Paul	246, 001	38	15	2	0	2	24	4	6
Iowa:									
Davenport	52, 469	0	0	0	0	--------	7	1	--------
Des Moines	141, 441	0	2	1	0	--------	0	0	4
Sioux City	76, 411	3	1	2	0	--------	34	8	--------
Waterloo	36, 771	2	0	0	0	--------	9	1	--------
Missouri:									
Kansas City	367, 481	0	6	24	0	2	86	8	5
St. Joseph	78, 342	0	1	0	0	0	23	0	3
St. Louis	821, 543	22	37	47	0	0	25	92	--------
North Dakota:									
Fargo	26, 403	0	0	0	0	0	17	3	1
Grand Forks	14, 811	0	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15, 036	3	0	0	0	--------	5	0	--------
Sioux Falls	30, 127	1	0	0	0	--------	28	0	--------
Nebraska:									
Lincoln	60, 941	6	1	1	0	0	103	14	1
Omaha	211, 768	[illegible]	2	0	0	0	59	19	4
Kansas:									
Topeka	55, 411	15	1	0	1	0	314	0	2
Wichita	88, 367	11	0	1	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	122, 049	3	3	2	0	0	5	1	5
Maryland:									
Baltimore	796, 296	94	22	24	9	6	6	29	34
Cumberland	33, 741	0	1	0	0	0	1	0	0
Frederick	12, 035	0	0	1	0	0	0	0	0
District of Columbia:									
Washington	497, 906	63	11	16	2	3	6	0	15

City reports for week ended April 30, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
Virginia:									
Lynchburg	30,395	17	0	1	0	0	21	0	2
Norfolk	(1)	19	0	2	0	0	131	3	7
Richmond	186,403	1	2	1	0	0	142	0	5
Roanoke	58,208	6	1	0	0	1	2	0	0
West Virginia:									
Charleston	49,019	3	0	1	1	1	1	2	0
Wheeling	56,208	3	1	2	0	0	26	0	0
North Carolina:									
Raleigh	30,371	9	0	0	0	1	46	0	1
Wilmington	37,061	1	0	0	0	0	28	10	2
Winston-Salem	69,031	3	1	1	156	0	0	0	3
South Carolina:									
Charleston	73,125	1	0	0	24	0	7	0	2
Columbia	41,225	4	0	0	0	---	0	5	---
Greenville	27,311	0	1	0	0	0	2	0	1
Georgia:									
Atlanta	(1)	4	1	1	25	1	41	5	6
Brunswick	16,809	0	0	0	0	0	1	12	0
Savannah	93,134	1	0	3	28	3	5	1	1
Florida:									
Miami	69,754	11	3	0	0	0	2	11	1
St. Petersburg	26,847	---	0	---	---	0	---	---	0
Tampa	94,743	1	1	3	1	0	93	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,209	0	1	4	0	0	0	0	3
Louisville	305,935	4	3	2	2	0	1	7	12
Tennessee:									
Memphis	174,533	7	3	4	0	2	5	5	4
Nashville	136,220	6	1	1	0	3	1	2	2
Alabama:									
Birmingham	205,670	7	2	4	8	0	39	2	4
Mobile	65,955	2	1	0	0	2	2	1	0
Montgomery	46,481	1	0	0	2	0	26	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	0	1	0	---	40	1	---
Little Rock	74,216	0	0	3	1	1	4	0	1
Louisiana:									
New Orleans	414,493	1	7	20	6	4	23	0	15
Shreveport	57,857	4	1	0	0	1	14	8	3
Oklahoma:									
Oklahoma City	(1)	2	1	2	7	0	27	0	4
Tulsa	124,478	16	---	1	0	---	240	40	---
Texas:									
Dallas	194,450	7	3	5	1	1	133	1	2
Galveston	48,375	0	0	1	0	0	0	0	1
Houston	164,954	1	2	7	0	0	1	0	3
San Antonio	198,069	1	1	6	0	4	8	1	4
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	6	0	1
Great Falls	29,883	1	0	0	0	0	14	0	0
Helena	12,037	0	0	0	0	0	0	0	2
Missoula	12,668	0	0	0	0	0	1	0	0
Idaho:									
Boise	23,042	0	0	0	0	0	4	1	0
Colorado:									
Denver	280,911	21	11	6	---	1	76	4	7
Pueblo	43,787	3	1	0	0	0	53	0	3
New Mexico:									
Albuquerque	21,000	0	0	0	1	1	3	8	0
Utah:									
Salt Lake City	130,948	38	3	5	0	0	17	1	8
Nevada:									
Reno	12,665	0	0	0	0	0	1	0	0

[1] No estimate made.

City reports for week ended April 30, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
PACIFIC									
Washington:									
Seattle	(1)	70	5	2	0		67	72	
Spokane	108,897	11	2	1	0		6	0	
Tacoma	104,455	8	1	2	0	2	9	0	1
Oregon:									
Portland	282,383	15	6	10	0	1	248	3	4
California:									
Los Angeles	(1)	57	36	55	8	2	401	14	26
Sacramento	72,260	10	2	4	0	0	6	9	1
San Francisco	557,530	46	20	8	1	2	96	144	6

[1] No estimate made.

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	3	3	0	0	0	2	0	0	0	0	28
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	0	10
Manchester	2	0	0	0	0	0	0	0	0	0	17
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	6
Burlington	1	2	0	0	0	1	0	0	0	0	5
Massachusetts:											
Boston	61	108	0	0	0	18	1	1	0	17	246
Fall River	3	1	0	0	0	10	1	0	0	2	
Springfield	5	6	0	0	0	1	1	0	0	16	50
Worcester	7	12	0	0	0	11	0	0	0	7	49
Rhode Island:											
Pawtucket	1	1	0	0	0	1	0	0	0	0	22
Providence	9	9	0	0	0	1	1	1	0	2	58
Connecticut:											
Bridgeport	9	16	0	0	0	1	0	0	0	0	30
Hartford	4	11	0	0	0	0	0	0	0	5	23
New Haven	9	6	0	0	0	2	1	0	0	1	47
MIDDLE ATLANTIC											
New York:											
Buffalo	18	30	0	0	0	7	0	0	1	9	141
New York	262	638	1	0	0	[1] 127	10	5	0	86	1,499
Rochester	14	14	0	0	0	3	0	1	1	4	73
Syracuse	10	4	0	0	0	0	0	1	0	7	45
New Jersey:											
Camden	5	8	0	0	0	1	1	0	0	0	35
Newark	24	43	0	0	0	9	0	2	0	42	131
Trenton	3	3	0	0	0	3	0	1	0	1	41
Pennsylvania:											
Philadelphia	82	142	0	0	0	55	4	1	0	34	555
Pittsburgh	28	24	0	0	0	11	1	0	1	8	190
Reading	3	1	0	0	0	0	0	0	0	1	33
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	42	2	6	0	13	1	1	1	8	138
Cleveland	35	46	0	0	0	12	1	1	0	32	192
Columbus	10	6	2	0	0	5	0	0	0	18	87
Toledo	14	6	4	1	0	7	0	0	0	8	80

[1] Pulmonary tuberculosis only.

City reports for week ended April 30, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
EAST NORTH CENTRAL—con.											
Indiana:											
Fort Wayne	4	3	2	0	0	0	0	1	0	5	19
Indianapolis	10	28	12	36	0	10	0	0	0	20	115
South Bend	4	6	0	2	0	0	0	0	0	1	--------
Terre Haute	3	4	1	0	0	2	0	0	0	1	15
Illinois:											
Chicago	112	113	3	0	0	67	3	2	0	75	760
Peoria	3	3	1	0	0	2	0	0	0	1	19
Springfield	2	3	0	1	0	0	0	0	0	0	26
Michigan:											
Detroit	84	87	2	1	0	23	2	3	0	74	338
Flint	6	24	1	2	0	1	1	0	0	4	29
Grand Rapids	7	17	1	1	0	0	0	0	0	4	23
Wisconsin:											
Kenosha	3	12	1	0	0	1	0	0	0	3	9
Madison	3	0	0	0	0	2	1	0	0	22	13
Milwaukee	26	39	2	1	0	0	3	1	0	25	127
Racine	4	3	0	0	0	1	1	0	0	12	11
Superior	3	1	1	0	0	1	0	0	0	2	10
WEST NORTH CENTRAL											
Minnesota:											
Duluth	5	14	0	1	0	0	0	1	0	1	22
Minneapolis	38	54	8	0	0	3	1	0	0	3	99
St. Paul	26	26	4	0	0	2	0	0	0	5	63
Iowa:											
Davenport	2	0	3	0	--------	--------	0	0	--------	0	--------
Des Moines	6	12	2	1	--------	1	0	0	--------	0	--------
Sioux City	2	2	1	2	--------	--------	3	0	--------	2	--------
Waterloo	1	0	1	0	--------	--------	0	0	--------	2	--------
Missouri:											
Kansas City	11	16	1	10	0	9	1	0	0	23	193
St. Joseph	2	7	0	1	0	2	0	0	0	1	31
St. Louis	33	32	4	1	0	12	1	1	0	42	205
North Dakota:											
Fargo	2	4	0	0	0	0	0	0	0	0	18
Grand Forks	0	5	0	0	--------	--------	0	0	--------	0	--------
South Dakota:											
Aberdeen	3	0	0	0	--------	--------	0	0	--------	0	--------
Sioux Falls	1	1	1	0	--------	--------	0	0	--------	0	--------
Nebraska:											
Lincoln	2	1	1	0	0	0	0	0	0	0	13
Omaha	3	9	9	4	0	0	0	0	0	1	60
Kansas:											
Topeka	3	1	1	0	0	0	0	0	0	11	17
Wichita	2	3	2	0	0	2	0	0	0	3	33
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	13	0	0	0	1	0	0	0	0	34
Maryland:											
Baltimore	34	39	1	0	0	17	2	3	0	50	221
Cumberland	0	2	0	0	0	1	0	0	0	0	14
Frederick	1	1	0	0	0	0	0	0	0	0	6
District of Columbia:											
Washington	24	29	1	0	0	14	1	0	0	5	141
Virginia:											
Lynchburg	1	0	1	0	0	0	0	0	0	1	12
Norfolk	2	3	0	0	0	2	1	0	0	11	--------
Richmond	3	9	0	0	0	2	1	0	0	2	54
Roanoke	1	0	2	5	0	1	0	0	0	1	8
West Virginia:											
Charleston	1	3	1	1	0	1	0	3	0	7	16
Wheeling	2	0	0	0	0	0	0	0	0	2	12
North Carolina:											
Raleigh	0	2	1	0	0	0	0	0	0	18	11
Wilmington	0	0	1	0	0	0	0	0	0	12	12
Winston-Salem	1	0	5	0	0	2	0	0	0	62	20
South Carolina:											
Charleston	0	0	0	0	0	0	0	1	0	0	21
Columbia	0	0	1	0	--------	--------	0	1	--------	16	4
Greenville	1	0	1	0	0	1	0	0	0	1	6

City reports for week ended April 30, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
SOUTH ATLANTIC—continued											
Georgia:											
Atlanta	3	4	3	3	0	6	1	1	0	11	74
Brunswick	0	0	0	0	0	1	0	0	0	1	3
Savannah	1	1	0	1	0	3	0	0	0	0	32
Florida:											
Miami	1	0		0	0	3	1	0	0	17	28
St. Petersburg	0		0		0	0	0		0		10
Tampa	0	1	0	1	0	3	1	0	0	4	28
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	4	0	0	0	0	1	0	0	0	20
Louisville	6	9	1	2	0	4	1	1	0	34	74
Tennessee:											
Memphis	4	20	3	8	0	8	1	0	0	8	62
Nashville	2	2	1	0	0	5	0	3	0	6	50
Alabama:											
Birmingham	2	3	9	3	0	11	1	1	0	8	
Mobile	0	0	1	0	0	1	0	1	0	0	17
Montgomery	1	0	2	0	0	0	0	0	0	10	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	0	1	8	3
Little Rock	0	0	0	0	0	4	0	0	0	0	
Louisiana:											
New Orleans	5	5	2	0	0	20	2	1	1	7	152
Shreveport	0	0	1	0	0	2	1	1	0	0	25
Oklahoma:											
Oklahoma City	2	2	4	7	0	1	0	0	0	2	31
Tulsa	1	8	2	1			0	0		13	
Texas:											
Dallas	2	0	3	2	0	2	0	0	1	7	30
Galveston	0	0	0	0	0	0	0	0	0	0	12
Houston	1	2	1	4	0	5	1	0	0	0	57
San Antonio	1	1	0	0	0	11	1	1	0	0	61
MOUNTAIN											
Montana:											
Billings	1	2	0	0	0	0	0	0	0	0	3
Great Falls	1	7	1	0	0	0	0	0	0	0	8
Helena	1	2	0	1	0	0	0	0	0	0	9
Missoula	1	3	0	0	0	0	0	0	0	0	6
Idaho:											
Boise	1	1	0	0	0	0	0	0	0	0	4
Colorado:											
Denver	11	54	2	0	0	8	0	1	0	7	87
Pueblo	1	18	0	0	0	0	0	0	0	0	18
New Mexico:											
Albuquerque	1	4	0	0	0	1	1	1	0	0	7
Utah:											
Salt Lake City	2	19	1	0	0	3	0	0	0	33	40
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington:											
Seattle	8	9	4	0			1	3		40	
Spokane	4	12	5	6			0	0		4	
Tacoma	2	1	3	15	0	0	0	0	0	0	24
Oregon:											
Portland	7	13	6	5	0	4	1	0	0	8	76
California:											
Los Angeles	20	26	5	0	0	32	1	2	0	25	271
Sacramento	2	0	0	4	0	3	0	1	0	0	21
San Francisco	13	28	4	0	0	15	1	1	0	18	163

City reports for week ended April 30, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
New Hampshire:									
Manchester	0	1	0	0	0	0	0	0	0
Massachusetts:									
Boston	1	2	1	0	0	0	0	0	0
Rhode Island:									
Providence	1	1	2	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	6	3	11	2	0	1	1	4	2
EAST NORTH CENTRAL [1]									
Ohio:									
Columbus	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	9	3	3	0	1	1	0	1	0
Michigan:									
Detroit	0	0	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee	7	5	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	1	0	0	0	0	0	0	0
Minneapolis	0	0	1	2	0	0	0	0	0
St. Paul	0	0	0	1	0	0	0	0	0
Missouri:									
Kansas City	2	2	0	0	0	0	0	0	0
North Dakota:									
Fargo	1	2	0	1	0	0	0	1	0
SOUTH ATLANTIC									
District of Columbia:									
Washington	0	1	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	1	0	0	0
Georgia:									
Atlanta [1]	0	0	0	0	1	0	0	0	0
Savannah	0	0	0	0	4	2	0	0	0
Florida:									
Miami	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	0	0	1	0	0	0	0	1	1
Texas:									
Dallas	0	0	0	0	6	4	0	0	0
Houston [1]	0	0	0	0	0	1	0	-------	-------
MOUNTAIN									
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
Pueblo	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1	-------	0	-------	0	-------	0	0	-------
Spokane	1	-------	0	-------	0	-------	0	0	-------
California:									
Los Angeles	2	1	0	0	0	0	0	0	0
Sacramento	3	1	0	0	0	0	0	0	0
San Francisco	1	0	1	1	0	0	0	0	0

[1] Rabies (human): 1 death at Indianapolis, Ind., 1 case and 1 death at Atlanta, Ga., and 1 case and 1 death at Houston, Tex.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 30, 1927, compared with those for a like period ended May 1, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, March 27 to April 30, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927
101 cities	[2] 126	[2] 191	116	[3] 202	110	[2] 175	118	180	110	171
New England	80	137	125	181	47	104	73	135	83	95
Middle Atlantic	146	264	125	269	119	271	162	270	114	243
East North Central	[2] 113	[2] 160	88	[2] 170	86	[2] 136	87	132	98	138
West North Central	159	159	204	171	246	109	182	141	204	159
South Atlantic	95	157	86	[4] 126	89	141	67	136	67	105
East South Central	57	61	114	66	47	87	26	31	72	76
West South Central	60	180	60	340	30	143	47	126	56	180
Mountain	140	165	118	171	191	108	82	189	118	99
Pacific	201	170	137	126	134	115	145	157	153	188

MEASLES CASE RATES

	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927
101 cities	[2] 1,693	[2] 805	1,781	[3] 864	1,770	[2] 762	1,792	785	1,708	640
New England	1,460	204	1,568	269	1,809	223	1,663	295	1,526	323
Middle Atlantic	1,850	128	1,773	159	1,702	173	1,596	146	1,420	231
East North Central	[2] 1,504	[2] 884	1,572	[2] 920	1,471	[2] 861	1,459	778	1,488	638
West North Central	2,428	1,558	3,283	1,304	3,354	1,318	4,148	1,556	4,000	1,229
South Atlantic	2,649	1,096	2,630	[4] 1,003	2,919	1,317	2,516	1,596	2,507	1,022
East South Central	2,875	285	3,020	611	2,772	397	3,434	520	2,875	377
West South Central	43	948	236	2,143	133	1,019	163	1,267	159	935
Mountain	556	3,452	419	2,796	529	2,086	1,075	1,798	866	1,546
Pacific	246	2,767	388	3,058	372	2,212	501	2,107	664	1,532

SCARLET FEVER CASE RATES

	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927
101 cities	[2] 296	[2] 439	274	[3] 397	307	[2] 391	284	363	292	338
New England	391	513	318	362	373	423	222	346	281	402
Middle Atlantic	210	614	176	595	187	583	201	529	221	448
East North Central	[2] 331	[2] 323	330	[2] 272	343	[2] 280	288	296	290	282
West North Central	789	469	845	435	910	397	899	343	879	334
South Atlantic	173	197	145	[4] 189	181	150	158	161	216	194
East South Central	217	173	165	178	150	219	228	168	171	194
West South Central	86	55	116	101	133	50	172	42	146	34
Mountain	146	1,214	100	944	173	953	210	935	219	953
Pacific	249	340	155	243	338	243	260	209	204	199

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Madison, Wis., and Norfolk, Va., not included.
[4] Norfolk, Va., not included.

Summary of weekly reports from cities, March 27 to April 30, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Apr. 3, 1926	Apr. 2, 1927	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927
101 cities	[2] 42	[2] 23	32	[3] 27	26	[2] 24	31	33	26	21
New England	0	2	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	[2] 17	[2] 34	18	[2] 37	14	[2] 32	22	29	19	33
West North Central	46	30	50	42	42	53	44	40	30	38
South Atlantic	41	62	67	[4] 27	43	27	47	65	28	20
East South Central	98	122	88	87	52	97	98	103	98	66
West South Central	90	63	133	105	95	88	112	96	146	25
Mountain	55	9	27	27	27	27	46	54	36	9
Pacific	346	68	137	55	137	26	139	97	102	65

TYPHOID FEVER CASE RATES

101 cities	[2] 10	[2] 8	7	[3] 8	7	[2] 8	8	7	9	8
New England	7	12	9	7	9	9	5	0	5	5
Middle Atlantic	8	6	5	6	7	5	8	7	6	5
East North Central	[2] 3	[2] 1	3	[2] 5	2	[2] 1	1	3	4	6
West North Central	8	2	10	2	4	12	6	4	6	4
South Atlantic	17	16	6	[4] 10	4	13	7	11	19	16
East South Central	31	20	10	36	0	36	26	31	21	31
West South Central	34	25	17	38	34	17	26	13	17	13
Mountain	36	0	18	0	9	9	0	27	18	9
Pacific	11	24	13	8	13	18	21	10	27	18

INFLUENZA DEATH RATES

95 cities	[2] 89	[2] 22	74	[3] 23	53	[2] 22	38	18	33	18
New England	108	12	83	7	52	16	40	12	35	7
Middle Atlantic	100	21	76	26	59	21	34	20	27	21
East North Central	[2] 110	[2] 14	81	9	67	[2] 11	42	11	46	10
West North Central	38	4	32	17	23	12	32	21	17	12
South Atlantic	59	37	59	[4] 41	43	39	30	22	28	29
East South Central	98	102	238	71	47	87	103	56	98	36
West South Central	102	30	63	52	53	43	62	31	26	47
Mountain	27	27	46	36	46	18	46	0	9	9
Pacific	21	24	14	17	21	14	4	10	11	21

PNEUMONIA DEATH RATES

95 cities	[2] 335	[2] 163	277	[3] 163	241	[2] 154	201	159	177	144
New England	467	156	358	139	302	156	233	151	210	183
Middle Atlantic	433	186	339	199	288	176	240	199	219	169
East North Central	[2] 322	[2] 148	245	[2] 132	233	[2] 142	192	135	152	128
West North Central	160	93	186	137	133	129	137	125	108	56
South Atlantic	291	224	236	[4] 159	208	188	206	180	178	156
East South Central	357	127	429	209	331	132	259	153	233	127
West South Central	185	159	159	142	181	78	128	73	150	125
Mountain	155	162	137	243	155	153	109	162	118	189
Pacific	57	128	148	117	117	117	71	97	74	117

[2] Madison, Wis., not included.
[3] Madison, Wis., and Norfolk, Va., not included.
[4] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30, 438, 500	30, 960, 600	29, 778, 400	30, 289, 800
New England	12	12	2, 211, 000	2, 245, 900	2, 211, 000	2, 245, 900
Middle Atlantic	10	10	10, 457, 000	10, 567, 000	10, 457, 000	10, 567, 000
East North Central	16	16	7, 644, 900	7, 804, 500	7, 644, 900	7, 804, 500
West North Central	12	10	2, 585, 500	2, 626, 600	2, 470, 600	2, 510, 000
South Atlantic	21	20	2, 799, 500	2, 878, 100	2, 757, 700	2, 835, 700
East South Central	7	7	1, 008, 300	1, 023, 500	1, 008, 300	1, 023, 500
West South Central	8	7	1, 213, 800	1, 243, 300	1, 181, 500	1, 210, 400
Mountain	9	9	572, 100	580, 000	572, 100	580, 000
Pacific	6	4	1, 946, 400	1, 991, 700	1, 475, 300	1, 512, 800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended April 16, 1927.—The following report for the week ended April 16, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Iraq: Basra	0	0	0	0	1	0
British India:						
Karachi	----	0	0	0	1	1
Bombay	----	9	----	1	69	47
Calcutta	----	0	----	127	184	166
Rangoon	----	4	----	1	66	16
Bassein	----	2	----	7	0	0
Madras	----	0	----	1	9	1
Tuticorin	----	0	----	0	4	0
Straits Settlements: Singapore	1	1	0	0	0	0
Siam: Bangkok	0	0	19	20	2	2

Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
French Indo-China:						
Saigon and Cholon	0	0	16	13	0	0
Haiphong	0	0	----	8	0	0
China:						
Canton	0	0	0	0	11	----
Macao	0	0	0	0	----	1
Hong Kong	0	0	0	0	7	7
Japan: Hakodate	0	0	0	0	1	0
Kwantung: Dairen	0	0	0	0	3	0
Egypt. Alexandria	1	0	0	0	1	0

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Kamaran, Aden.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Chittagong, Cochin, Vizagapatam, Negapatam.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Tourane

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Tientsin, Shanghai.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo, Fusan.

Manchuria.—Yingkow, Antung, Changchun, Harbin, Mukden.

Kwantung.—Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Shimonoseki, Moji, Tsuruga, Kobe, Osaka.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

AUSTRALASIA AND OCEANIA—continued

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Samoa.—Apia.

New Caledonia.—Nouméa.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Kenya.—Mombasa.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—Saint Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga, Tamatave, Diégo-Suarez.

Reports had not been received in time for publication from:

Ceylon.—Colombo.
Dutch East Indies.—All ports.
Union of Socialistic Soviet Republics.—Vladivostok.

Belated information:

Week ended April 9: *Surabaya*, 1 fatal plague case. Other ports of *Dutch East Indies, Colombo,* and *Mombasa*, nil.

Movement of infected ships:

Singapore.—The steamship *Kwangsang* arrived on April 15, from Hongkong, infected with smallpox.
Cape Town.—The Health Service of the *Union of South Africa* states on April 19: No further plague case developed on board steamship *Armadale* or ashore. No clue to source of infection discovered.

BRAZIL

Typhoid fever prevalence—Sao Paulo—November 29–December 26, 1926.—Decreased prevalence of typhoid fever has been noted at Sao Paulo, Brazil, over that reported during the previous two years. The total number of cases during the period under report was 55, with 17 deaths, in a total mortality of 1,289 deaths. Population, 846,725. It was stated that a chlorination system for the water supply of the city was in operation.

CANADA

Communicable diseases—Week ended April 30, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from six Provinces of Canada for the week ended April 30, 1927, as follows:

Disease	Nova Scotia	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	12						12
Smallpox			7		2	7	16
Typhoid fever		115	11	5			131

Communicable diseases—Ontario—April, 1927 (Comparative).—During the month of April, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	1927		1926		Disease	1927		1926	
	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	4	1	2		Mumps	183		158	
Chancroid			2		Pneumonia		167		519
Chicken pox	823		305		Puerperal fever		1		
Diphtheria	221	16	122	12	Scarlet fever	843	5	526	7
German measles	614		361		Septic sore throat	8	1		
Goiter	5	2			Smallpox	44		52	
Gonorrhea	120		78		Tuberculosis	141	69	171	105
Influenza	60	24		164	Typhoid fever	84	4	23	1
Lethargic encephalitis	1		1	1	Whooping cough	257	1	255	9
Measles	1,340	2	1,880	7					

Smallpox.—Smallpox was reported present in 8 localities, the greatest number of cases, viz, 23, being reported at Toronto. At Ottawa 7 cases were reported.

Communicable diseases—Quebec—Weeks ended April 30, and May 7, 1927.—The Bureau of Health of the Province of Quebec reported cases of certain communicable diseases for the weeks ended April 30 and May 7, 1927, as follows:

WEEK ENDED APR. 30

Disease	Cases	Disease	Cases
Chicken pox	9	Scarlet fever	69
Diphtheria	51	Tuberculosis	70
German measles	34	Typhoid fever	115
Influenza	2	Whooping cough	17
Measles	137		

WEEK ENDED MAY 7

Disease	Cases	Disease	Cases
Chicken pox	18	Scarlet fever	73
Diphtheria	34	Tuberculosis	53
German measles	32	Typhoid fever	112
Measles	93	Whooping cough	19

CUBA

Communicable diseases—Habana—April 1-30, 1927.—During the month of April, 1927, communicable diseases were reported in Habana, Cuba, as follows:

Disease	New cases	Deaths	Remaining under treatment Apr. 30, 1927	Disease	New cases	Deaths	Remaining under treatment Apr. 30, 1927
Beri-beri			2	Malaria [1]	31		30
Chicken pox	54		56	Measles	50		51
Diphtheria	14		7	Paratyphoid fever	1	1	4
Filariasis	2		1	Scarlet fever	7		3
Leprosy	1		12	Typhoid fever [1]	24	3	27

[1] Many of these cases from the interior.

ECUADOR

Plague—Guayaquil—February 16-28, 1927—March, 1927.—Plague has been reported at Guayaquil as follows: February 16 to 28, 1927—cases, 13; deaths, 3. March, 1927—cases, 23; deaths, 9.

Plague-infected rats found.—During the period February 16 to 28, 1927, of 11,036 rats taken 22 rats were found infected, and during the month of March, 1927, of 24,357 rats taken 86 were found infected.

HAITI

Typhoid fever—Port au Prince—April 10–30, 1927.—Typhoid fever has been reported at Port au Prince, Haiti, during the period April 10–30, 1927, with two cases reported for the first two weeks of the period and 11 cases with 5 deaths during the week ended April 30. Previous reports from the beginning of the year 1927 show for the week ended January 29, one case, and for the week ended February 26, one fatality from typhoid fever.

PERU

Disease prevalence—La Oroya—January–March, 1927.—Reports received from La Oroya, Peru, for the three months ended March 31, 1927, show parotiditis (mumps) to be epidemic among the native Indian population and smallpox and typhus fever present, with an unreported number of cases. The town is situated in the Andean region of Peru.

Plague—March, 1927.—During the month of March, 1927, 13 cases of plague with 5 deaths were reported in Peru, the occurrence being distributed in the departments of Ancash, Cajamarca, Callao, and Lima. The greatest number of cases, viz, 5, with 4 deaths occurred in the city of Lima.

SENEGAL

Plague—April 1–20, 1927.—During the period April 1–20, 1927, plague was reported in Senegal as follows: April 1–10, 1927—10 cases occurring 150 kilometers from Dakar. April 1–20, 1927—23 cases, with 6 deaths, occurring in the district of Tivaouane, and 14 cases, with 10 deaths, in the district of Thies, both localities being situated in the interior of Senegal.

UNION OF SOUTH AFRICA

Plague—Typhus fever—Cape Province—March 20–26, 1927.—During the week ended March 26, 1927, a fatal case of plague, native, was reported on a farm in Cradock District, Cape Province, Union of South Africa. During the same period fresh outbreaks of typhus fever were reported in Xalanga District, Cape Province.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given:

Reports Received During Week Ended May 20, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Rangoon	Mar. 27-Apr. 2	2	1	
Siam				Mar. 20-26, 1927: Cases, 56; deaths, 44. Apr. 1, 1926-Mar. 26, 1927: Cases, 8,466; deaths, 5,598.
Bangkok	Mar. 20-26	15	12	

PLAGUE

Place	Date	Cases	Deaths	Remarks
Ceylon:				
Colombo	Mar. 27-Apr. 2	4	2	
Ecuador:				
Guayaquil	Feb. 16-28	13	3	Rats taken, 11,036; found infected, 22.
Do	Mar. 1-31	23	9	Rats taken, 24,357; found infected, 86.
Greece:				
Athens and Piraeus	Jan. 1-Mar. 31	24	3	
India:				
Madras Presidency	Mar. 13-19	68	28	
Rangoon	Mar. 27-Apr. 2	3	2	
Iraq:				
Baghdad	Mar. 6-12	2		
Peru				March, 1927: Cases, 13; deaths, 5.
Department—				
Ancash	Mar. 1-31	3		At Chimbote; in districts.
Cajamarca—				
Cajamarca Province.	do			Present at San Juan.
Callao—				
Callao	do	1	1	
Lima—				
Canete Province	do	2		In districts.
Chancay Province	do	2		At Huacho.
Lima Province—				
Lima City	do	5	4	
Senegal:				
Dakar	Apr. 1-10	10		At locality 150 kilometers from Dakar.
Thies	Apr. 1-20	14	10	Interior districts.
Tivaouane	do	23	6	Do.
Siam				Mar. 20-26, 1927: Cases, 1; deaths, 1. Apr. 1, 1926-Mar. 26, 1927: Cases, 42; deaths, 33.
Bangkok	Mar. 20-26	1	1	
Union of South Africa:				
Cape Province—				
Cradock District	do	1	1	In native on farm.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Apr. 1-10	2		
Oran	Apr. 11-20	9		
Brazil.				
Rio de Janeiro	Apr. 3-16	3		
British South Africa:				
Rhodesia	Mar. 19-25	1		Native.
Canada	Apr. 24-30			Cases, 16.
Alberta				Apr. 24-30, 1927: Cases, 7.
Calgary	Apr. 17-30	7		
British Columbia—				
Vancouver	Apr. 18-24	2		
Manitoba—				
Winnipeg	May 1-7	1		
Ontario				April, 1927: Cases, 44.
Do	Apr. 24-30	7		Corresponding period, year 1926: Cases, 55.
Toronto	do	5		Apr. 1-30, 1927: Cases, 23.
Saskatchewan				Apr. 24-30, 1927: Cases, 2.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China:				
Anshan	Mar. 21-27	3		
Antung	do	1		
Hong Kong	Mar. 27-Apr. 2	10	10	
Manchuria—				
Kai-yuan	Mar. 20-27	2		
Tientsin	Mar. 27-Apr. 2	2		
France:				
Paris	Apr. 1-10	4	1	
Great Britain:				
England and Wales	Apr. 17-23	358		
Bradford	do	4		
Leeds	Apr. 10-16	1		In vicinity.
Newcastle-on-Tyne	Apr. 16-23	2		
Scotland—				
Dundee	Apr. 17-23	9		
Guatemala.				
Guatemala	Mar. 1-31		23	
India:				
Karachi	Apr. 3-9	4		Imported
Madras	do	10		
Rangoon	Mar. 27-Apr. 2	48	13	
Iraq:				
Baghdad	do	2		
Basra	Mar. 20-26	1		
Japan:				
Yokohama	Mar. 26-Apr. 1	3		
Mexico:				
Manzanillo	Apr. 18-25		1	
Mexico City	Apr. 17-23	1		Including municipalities in Federal district.
Portugal:				
Lisbon	Apr. 10-23	4		
Senegal:				
Gueudel	Apr. 11-17	1		Village in Rufisque.
Kebemer	do	1		
Niger Colony	Apr. 1-20	3		At two localities.
Tivaouane	Apr. 11-17	2		
Siam				Mar. 20-26, 1927: Cases, 26; deaths, 10. Apr. 1, 1926-Mar. 26, 1927: Cases, 849; deaths, 316.
Bangkok	Mar. 20-26	8	4	
Spain:				
Valencia	Apr. 17-23	1		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Apr. 1-10	8		
Oran	Apr. 11-20	1		
Chile:				
Iquique	Apr. 3-9		1	
Valparaiso	Apr. 10-16	1	1	
Iraq:				
Baghdad	Mar. 6-19	2	2	
Mexico:				
Mexico City	Apr. 3-23	22		Including municipalities in the Federal district.
Union of South Africa:				
Cape Province—				
Xulanga district	Mar. 20-26			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927[1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
Do	Jan. 2-22	10	7	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 13,507.
Do	Jan. 2-Feb. 12			Cases, 15,862; deaths, 8,910.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Mar. 19	601	468	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar. 19	12	9	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Mar. 26	60	51	
Indo-China	July 1-Dec. 31			Cases, 8,508.
Do	Jan. 1-31	490		
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Mar. 19			Cases, 506; deaths, 351.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Mar. 19	81	44	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-Feb. 28	8		
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Mombasa	Feb. 27-Mar. 19	7	7	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8–Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec 22			Outbreak.
Ceylon:				
Colombo	Nov. 14–Dec. 11	3	1	2 plague rodents.
Do	Jan. 2–Mar. 26	43	24	13 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31–Dec. 18			Present.
Do	Feb. 6–Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1–Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1–Feb. 15	43	10	Rats taken, 36,124; found infected, 129.
Egypt	Jan. 1–Dec. 9			Cases, 149.
Do	Jan. 1–Mar. 18			Cases, 14.
Alexandria	Nov. 19–Dec. 2	2		
Do	Apr. 2–5	2	1	
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Guerga district	Apr. 5	1	1	
Kafr el Sheikh	Dec. 3–9	2		
Marsa Matrah	Dec. 23–29	10		
Do	Jan. 27	1		
Port Said	Mar. 12–18	2	1	
Tanta district	Nov. 19–Dec. 20	3		
Greece:				
Athens and Piræus	Nov. 1–Dec. 31	19	5	
Patras	Nov. 28–Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10–Jan. 1			Cases, 16,162; deaths, 9,965.
Do	Jan. 2–Feb. 19			Cases, 9,696; deaths, 7,413.
Bombay	Nov. 21–27	1	1	
Do	Jan. 16–Mar. 26	22	19	
Madras	Oct. 31–Jan. 1	581	324	
Do	Jan. 2–Mar. 12	897	542	
Rangoon	Nov. 14–Dec. 25	11	9	
Do	Jan. 2–Mar. 26	52	48	Rats found plague infected, 12.
Indo-China	July 1–Dec. 31			Cases, 52; deaths, 34.
Do	Jan. 1–31	12		
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18.
Iraq:				
Baghdad	Jan. 23–Feb. 5	2	1	
Java:				
Batavia	Nov. 7–Jan. 1	91	90	Province.
Do	Jan. 2–Mar. 26	244	237	Do.
East Java and Madura	Oct. 24–Jan. 1	17	17	
Do	Jan. 2–Mar. 5	18	18	
Madagascar:				
Province—				
Ambositra	Dec. 16–31	10	10	
Do	Jan. 1–Feb. 15	46	44	
Analalava	Oct. 16–31	1	1	
Antsirabe	Dec. 16–21	2	2	
Do	Jan. 1–Feb. 15	54	54	
Diego-Suarez	do	7	7	
Itasy	Oct. 16–Dec. 31	39	39	
Do	Jan. 1–Feb. 15	92	86	
Maevatanana	Oct. 16–31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16–Dec. 31	92	67	
Do	Jan. 1–Feb. 15	50	48	
Tamatave	Oct. 16–Dec. 31	107	99	
Tananarive	do			Cases, [illegible]; deaths, 467.
Do	Jan. 1–Feb. 15	352	346	
Town—				
Tamatave	Nov. 16–30	2		
Tananarive	Oct. 16–Dec. 31	48	47	
Do	Jan. 1–Feb. 15	19	18	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Do	Jan. 1-31	5	3	
Nigeria	Aug. 1-Nov. 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-Feb. 28	79	18	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-31			Present.
Cajamarca	do	36	6	
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	Feb. 1-28	6	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb. 28	6		
Lima	Nov. 1-Dec. 31	42	14	
Do	Jan. 1-Feb. 28	66	16	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Diourbel	Nov. 20-30	12	1	
Thies	Mar. 28-Apr. 3	3	5	
Tivaouane	Dec. 19-25	6	2	In interior.
Do	Mar. 21-Apr. 3	4	4	Do.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Mar. 19			Cases, 11; deaths, 9.
Bangkok	Feb. 27-Mar. 5	1	1	
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonia
Bousse	Jan. 12-26	8		
Djenemana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Feb. 19	3	1	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Richmond district	Mar. 6-12	3	2	
Orange Free State	do			Cases, 12; deaths, 2.
Bloemfontein district	Feb. 27-Mar. 19	3	3	
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 707.
Do	Jan. 1-Feb. 20			Cases, 227.
Algiers	Dec. 11-31	4		
Do	Jan. 1-Mar. 31	12		
Oran	Mar. 21-Apr. 10	22		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Angola	Oct. 1-15			Present in Congo district.
Congo	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange	Feb 2-15	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Do	Apr. 3-9	1		
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,033; deaths, 2,180
Do	Jan. 2-Apr. 2	74	34	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-Mar. 5	34	21	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do	Feb. 26-Mar. 18	130	4	
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-Apr. 23			Cases, 589.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-Apr. 23	230		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-Apr. 16	47	1	
Edmonton	Dec. 1-31	4		
Do	Jan. 1-Mar. 31	18		
British Columbia—				
Vancouver	Jan. 31-Apr. 17	8		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-Apr. 23	23		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-Apr. 22	9		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Apr. 23	282		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-Apr. 23	9		
Toronto	Dec. 14-25	14		
Do	Jan. 1-Apr. 23	88	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-Apr. 23	55		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
Iquique	Mar. 1-15	2		
China:				
Amoy	Jan. 1-Mar. 26	8		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Mar. 20			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Mar. 12			Do.
Foochow	Nov. 7-Dec. 25			Do.
Do	Feb. 27-Mar. 19			Do.
Hankow	Nov. 6-30			Do.
Hong Kong	Jan. 23-Mar. 26	88	50	
Manchuria—				
Dairen	Feb. 20-Mar. 6	6		
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Kai-Yuan	Mar. 20-26	1		
Mukden	Dec. 5-11	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 3-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 20-Mar. 26	1	2	
Swatow	Nov. 21-27			Do.
Tientsin	Jan. 16-Mar. 26	23		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Chosen	Aug. 1–Nov. 30	53	10	
Do	Jan. 21–Feb. 20	7	1	
Seoul	Nov. 1–30	2		
Egypt:				
Alexandria	Jan. 8–14	1		
Cairo	June 11–Aug. 26	27	4	
Estonia	Oct. 1–30	2		
France	Sept. 1–Dec. 31	293		
Paris	Dec. 1–31	10	3	
Do	Jan. 1–Mar. 31	20	3	
French Settlements in India	Aug. 29–Jan. 1	127	127	
Do	Jan. 2–22	24	24	
French Sudan:				
Kita	Mar. 28–Apr. 3			Present.
Germany:				
Stuttgart	Nov. 28–Dec 4	7		
Gold Coast	Aug. 1–Nov 30	59	14	
Great Britain:				
England and Wales	Nov. 14–Jan. 1			Cases, 2,262.
Do	Jan. 2–Apr. 16			Cases, 6,880
Birmingham	Mar. 13–19	5		
Bradford	Jan. 9–22	2		
Cardiff	Feb. 13–19	1		
Leeds	Mar. 27–Apr. 2	1		
London	Reported Apr. 28	6		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5–13	2		
Do	Jan. 2–Apr. 9	19		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28–Jan. 1	60		
Do	Jan. 2–Apr. 2	543	1	
Wakefield	Jan. 30–Feb. 2	2		
Scotland—				
Dundee	Mar. 31–Apr. 16	88		
Greece	Nov. 1–Dec. 31	25		
Athens	Dec. 1–31	14	2	
Do	Mar. 1–31	9	2	Including Piræus.
Guatemala:				
Guatemala City	Nov. 1–Dec 31		15	
Do	Jan. 1–Feb. 28		51	
India	Oct 10–Jan. 1			Cases, 22,846; deaths, 6,006.
Do	Jan. 2–Feb. 19			Cases, 31,471; deaths, 7,645.
Bombay	Nov. 7–Jan. 1	37	20	
Do	Jan. 2–Mar. 26	484	264	
Calcutta	Oct. 31–Jan. 1	449	311	
Do	Jan. 2–Mar. 19	1,876	1,372	
Karachi	Dec. 19–25	1	1	
Do	Jan. 2–Apr. 2	38	25	
Madras	Nov. 21–Jan. 1	32	2	
Do	Jan. 2–Apr. 2	284	11	
Rangoon	Nov. 28–Jan. 1	2	2	
Do	Jan. 2–Mar. 26	261	53	
Indo-China.				
Saigon	Dec. 26–Jan. 1	3		
Do	Feb. 6–12	1		
Iraq:				
Baghdad	Oct. 31–Dec. 4	7	4	
Do	Jan. 23–Mar. 5	5	1	
Basra	Nov. 7–13	1	1	
Italy	Aug. 29–Jan. 1	28		
Do	Jan. 2–15	2		
Genoa	Dec. 30–31	1		
Do	Jan. 1–10	2		
Jamaica	Nov. 26–Jan. 1	37		Reported as alastrim.
Do	Jan. 2–Apr. 2	105		Do.
Japan	Oct. 24–Jan. 1	27		
Do	Jan. 2–9	28		
Kobe	Nov. 14–20	1		
Do	Jan. 23–Apr. 2	3		
Yokohama	Nov. 27–Dec. 3	2		
Java:				
Batavia	do	2		Province.
Do	Mar. 13–19	1		
East Java and Madura	Oct. 24–Dec. 25	11	1	
Do	Jan. 2–27	4	3	
Lithuania	Nov. 1–30	2		
Luxemburg	Nov. 1–Dec. 31	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico	July 1-Oct 31		534	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 4		4	
Mazatlan	Feb. 14-Apr. 17		3	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Mar. 26	6		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-Apr. 9		2	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Apr. 9		27	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. 1-Dec. 31	165	40	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Apr. 2	33		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Apr. 3	4		
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Siam	Apr.-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Mar. 5			Cases, 64; deaths, 30.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Mar. 5	34	21	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Apr. 2	9		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-Feb. 26	4	3	
Tunisia	Oct. 1-Dec 31	9		
Do	Jan. 1-Feb. 20	18		
Tunis	Jan. 1-Mar. 10	3		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec 20	39	2	
Do	Jan. 1-Feb. 20			Cases, 84; deaths, 7.
Algiers	Feb. 1-Mar. 31	38		
Oran	Mar. 21-31	7		
Angola:				
Benguela district	Feb. 16-28	1		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Do	Jan. 1-31	7	3	
Chile	Sept. 15-Nov. 15	39	4	
Chillan	Jan. 1-31	4	3	
Concepcion	Sept. 15-Nov. 15	1		
Do	Jan. 23-29		1	
Lebu	Sept. 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	Sept. 15-Dec. 31	25	2	
Do	Feb. 1-28	3		
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Mar. 19	5	1	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Do	Feb. 27-Mar. 12			Do.
Chosen	Aug. 4-Dec. 31	54	5	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do	Jan. 1-Feb. 28	48		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-Apr. 7	5	2	
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-Feb. 28	13		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec 31	19	2	
Do	Feb. 1-Mar. 31	17	3	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	do	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Donegal County—				
Litterkenny	Mar. 27-Apr. 2	5		Rural district.
Milford	do	3		
Italy	Aug. 29-Sept. 23	3		
Japan	Jan. 2-29			Cases, 2.
Tokyo prefecture	Dec. 5-25	9		
Tokyo City	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Do	Jan. 1-31	24		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 13, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Mexico	July 1-Nov. 30			Deaths, 576.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal district.
Do	Jan. 2-Apr. 2	74		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec 28-Jan. 3	1		
Do	Apr. 5-11	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Year, 1926		9	District.
Lima	Jan. 1-31		1	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Mar. 5			Cases, 542; deaths, 55.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-Feb. 20	72		
Tunis	Jan. 21-Mar. 31	4		
Do	Reported Apr. 13	3		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-Feb. 28	51	4	
Do	Mar. 13-19			Outbreaks.
Clydesdale	Mar. 6-12			Do.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 28	17	3	
Do	Mar. 13-19			Outbreaks.
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Mar. 31	74	4	

YELLOW FEVER

French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

PUBLIC HEALTH REPORTS

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SPECIAL ARTICLE

The Public Health Organization of Denmark

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

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THE PUBLIC HEALTH ORGANIZATION OF DENMARK[1]

By THOMAS PARRAN, Jr., *Assistant Surgeon General, United States Public Health Service*

Introduction

In order to understand fully the public health service of Denmark, one must know something of the country and its people. An opportunity was afforded the writer in 1926, as the representative from the United States at an international interchange of public health officers under the League of Nations, to participate in an intensive study tour of the public health organization of that country.

Denmark presents a very interesting field for the student of any problem of social welfare and particularly for the student of public health. It is a small country, with an area of 16,600 square miles and a population of about 3,400,000. This population is approximately the same as that of the State of Missouri, which State has four times the area of Denmark. The capital and largest city is Copenhagen, with a population of 575,000. Adjacent to and partially surrounded by Copenhagen is the next largest city, Frederiksberg, with a population of 104,000. Denmark is a farming country; 31 per cent of the people earn their living by agriculture, and 57 per cent of the population live in rural districts. The country has a homogeneous population, 97 per cent being native born. The people are above the average in physical fitness. Standards of living and of education are high, and there is a comparatively even distribution of wealth, with a relative absence of poverty.

Mortality rates are very favorable; the general death rate is under 12 per thousand, and the birth rate, although declining, is nearly double the death rate. The average expectation of life is 58 years. The infant mortality rate has been consistently under 85 per thousand live births for several years. It is somewhat lower, and is declining more rapidly in the cities than in the rural districts. Typhoid fever has declined almost to the vanishing point, there having been less than one death per 100,000 inhabitants for each of the past five years. The mortality and morbidity rates from diphtheria

[1] Much of the information presented here was secured from "Health Organization in Denmark," published by the Health Section of the League of Nations; from the National Board of Health of Denmark; and from the Danish public health officials, to all of whom the writer makes grateful acknowledgment.

have fluctuated somewhat, but the general trend has been downward, and for 1924 the diphtheria death rate was 6.5 per 100,000. Scarlet fever, likewise, has declined, and for 1924 the death rate from this disease was 0.9 per 100,000. The tuberculosis death rate is declining and is now the lowest of any country in Europe. A more complete discussion of the tuberculosis rate will be given in connection with the section dealing with that disease.

The Central Government

The Government of Denmark is a limited monarchy, in which the legislative power lies with the King and Parliament and the executive power with the King and 11 ministers chosen by him, each of whom is at the head of a special administrative department.

The public health activities of the Government are distributed among several ministries. There is given below a summary of the more important public health and public welfare activities.

The Ministry of Home Affairs, through the National Board of Health—

1. Approves and superintends the enforcement of health and sanitary legislation and local regulations.
2. Approves plans for hospitals, charitable institutions, and childrens' homes.
3. Acts as consultative body for other branches of the Government.
4. Makes proposals to local authorities concerning necessary health measures.
5. Collects, prepares, and publishes medical statistics.

The Ministry of Justice—

1. Through medicolegal council gives all legal medical opinions necessary to determine the legal position of individuals.
2. Enforces laws governing narcotics, quarantine, prostitution, the mentally deficient, the insane, the inspection of foods, milk, cream, etc.
3. Conducts inquests, legal autopsies, etc.

The Ministry of Social Affairs (Public Welfare)—

1. Supervises all child welfare activities, including children's homes and care of foster children.
2. Supervises sick-benefit clubs, invalidity and accident insurance.
3. Cares for insane, mentally deficient, deaf, blind, and crippled, and administers the State institutions in connection therewith.
4. Supervises tuberculosis hospitals and sanatoria and public aid for treatment of tuberculosis.
5. Regulates industrial hygiene and accident prevention.

The Ministry of Education—

1. Administers the State Hospital (Rigshospital), in connection with the State University.
2. Trains physicians, pharmacists, dentists, midwives.
3. Supervises school hygiene.

The Ministry of Agriculture—

1. Administers veterinary affairs.
2. Supervises dairies, slaughterhouses, meat, and, partly, milk inspection.

The country now[2] has a socialist government, which, however, has not introduced any drastic changes in policy, since for many years Denmark has been a highly socialized country.

As will be seen from the above outline, the public health service of the Government is mainly under the National Board of Health. This board is presided over by a president (a physician appointed by the King). Under his direction are a medical council and a chemists' council, each in charge of a vice chairman. The personnel of the board is not extensive, consisting, in addition to the above, of a leader of the office, a medical secretary, a legal secretary, two statisticians, and six clerks. Attached to the National Board of Health are a number of expert advisers, or consultants, to whom are referred important questions relating to their particular speciality. There are now advisers in hygiene, bacteriology and epidemiology, pharmacology, tuberculosis, psychiatry, dentistry, and pharmacy.

Independent of, but in close connection with, the National Board of Health is the State Serum Institute, the director of which is the consultant in bacteriology and epidemiology. The State Serum Institute is the central epidemiological laboratory for the whole country.

The National Board of Health now has a field force of 73 district medical officers, 23 of whom also act as county medical officers of health, and 4 district medical officers on the Faroe Islands, 1 of whom is county medical officer. All of these are appointed and paid by the State. These are all part-time officials who give a varying amount of time to their official duties, depending upon the population and problems in their jurisdiction. In Copenhagen is a chief medical officer of health (a full-time official) with several assistants. The duties of the district medical officers may be enumerated as follows:

1. Receive weekly or current reports of contagious diseases from all physicians; make weekly reports to the county medical officer; and make monthly reports to the National Board of Health and to the county medical officer.

2. Order disinfection of premises when necessary, and take special steps where necessary to prevent the spread of contagion, after consultation with epidemic committee, as regards sale or handling of milk or food, discontinuance of occupation, etc.

3. Receive monthly from the vicar of each parish all birth and death certificates and forward them through the county medical officer to the National Board of Health.

4. Make an annual report concerning morbidity, mortality, and births.

5. Superintend the work of midwives, and keep in touch with doctors, dentists, pharmacists, and nurses, supplying them with registration forms, informing them of reports to be made, etc.

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[2] December, 1926, a liberal government came into office. A Ministry of Health replaced the Ministry of Social Affairs. Practically all public health activity is now under this new ministry.

6. Serve as a member of the locally appointed epidemic and health committee in their home districts and attend meetings of other committees in their jurisdictions.

7. Supervise the sanitary conditions in all public institutions, schools, dairies, and food establishments, and have general responsibility for the sanitation and health of their districts.

8. Treat all cases of venereal disease applying to them. (In the larger districts other specialists paid from public funds, are provided for giving venereal disease treatment.)

9. Hold vaccination clinics twice annually in the towns and once annually in every rural township. Should smallpox occur, daily vaccination is arranged for.

10. Act as legal advisor to the courts, especially reporting on the mental condition of a patient, acting as coroner, and examining intoxicated automobilists.

The county medical officers, in addition to the duties devolving upon them as district medical officers for the districts in which they live, supervise the work of all district medical officers, direct campaigns against extensive outbreaks of disease, make an annual inspection of all pharmacies, direct and judge the work of midwives, prepare annual reports for the whole county, and serve as members of the county epidemic committee.

The Local Government

For administrative purposes the country is divided into 23 counties, with a county council elected by the people and with a lord lieutenant appointed by the King, who is chairman of the county council.

Lords lieutenant are assisted by 72 chief constables. In each county there is a county epidemic committee, consisting of the county commissioner (i. e., the lord lieutenant) as chairman, the county medical officer, and three members appointed by the county and town councils. Each police district, which includes several rural parishes, has a local epidemic committee consisting of a chief constable, a district medical officer of health, and three members elected by the county council. The rural districts are divided into a total of 1,130 parishes, each with a parish council. In about two-thirds of them there is a local sanitary committee, which looks after sanitary conditions generally.[3] There is a total of 88 boroughs (incorporated towns), each with a town council and a local epidemic committee. The city of Copenhagen has a special form of government not subject to the jurisdiction of any county, but responsible directly to the corporation of the city and, in certain respects, to the National Government. With the exception of the lords lieutenant, chief constables, and medical officers of health, who are appointed by the

[3] The local epidemic committees are not identical with the sanitary committees of the rural parishes. Each police district, which includes several parishes, has a local epidemic committee, consisting of the chief constable (chairman), the district medical officer of health, and three members elected by the county council.

central government, the organization of the country is somewhat comparable to our county, township, and town governments. Local government is highly developed, and the administration of public-health affairs is, to a great extent, decentralized.

Medical Education

All Danish physicians receive the same university education at the one national medical school, the University of Copenhagen, at which instruction is practically gratuitous, the fees for the entire course amounting to less than $30. After a preliminary education corresponding to graduation from a high school in the United States, seven years of university education are required. The curriculum compares favorably with that in a Class A medical school of this country. There are about 900 medical students, and each year from 70 to 100 graduate. There is about one physician for each 1,600 inhabitants in the country. It was of much interest to learn that quackery has been forbidden since 1672 and that there are practically no unqualified physicians in the country.

In addition to the university education, the candidate must attend a course in obstetrics at the State lying-in hospital in order to get a full license, and most physicians continue their training for one or more years in a hospital. All who aspire to be specialists must take several additional years of training under rules laid down by the Danish Medical Association, which organization publishes each year a list of approved specialists. A small minority of Danish physicians qualify themselves as "university doctors," which gives a right to lecture at the university.

Since 1914, special training has been required as a prerequisite for appointment as a medical officer of health. This consists of a four months' course in hygiene, vital statistics, forensic medicine, psychiatry, bacteriology, epidemiology, venerology, and sanitary law. Before being admitted to this course the applicant must have passed all medical examinations, must have served one month in a maternity hospital, six months in a medical and six months in a surgical hospital department, three months in an epidemic hospital, three months in a psychiatric hospital or asylum, and three months as a practitioner in the country or in a small town. In brief, the requirements for qualification of a medical officer of health consist of 26 months' theoretical and practical training in addition to being a medical graduate.

The uniformly high standard of medical education in Denmark for all physicians has insured a good quality of medical service, and as a result, the physicians are held in high esteem by the people. The economic and social condition of the doctors on the whole seemed

to be comparatively better in Denmark than in the United States. Only 20 per cent of the medical service is classified as "private practice," the remainder being by contract with the sick benefit clubs and through employment by the local and state governments. The furnishing of medical treatment will be discussed elsewhere in this report under the sections dealing with hospital service and sick benefit clubs.

Dentists.—Students of dentistry are required to take a three-year course in the School of Dentistry, and after graduation must serve as clinical assistant for two years before being allowed to practice. There are about 600 dentists in the country.

Nurses.—The training of nurses compares favorably with that in the United States, a three-year course of theoretical and practical training being required. There are about 5,500 graduate nurses in the country. Recently sick benefit clubs have employed nurses extensively to give bedside care in the homes of their members, and the city of Copenhagen has begun home nursing to relieve pressure on the hospitals. Public health nursing, however, has not developed as yet to an appreciable extent, but a great number of parish nurses work in rural houses in cooperation with the physicians.

Midwives.—All births must be attended by a midwife (or a doctor); most births are attended by midwives. For complicated cases requiring the use of instruments, a doctor must be summoned. The death rate from puerperal sepsis is low, being less than 1.0 per 1,000 live births.

All midwives must take a course in training at the State hospital lasting one year and pass an examination. Their practice is supervised carefully by the medical officers of health. There are 1,100 midwives in the country, of whom 75 per cent are paid partly by the State and local governments to assure attendance at all births.

Hospital Service

The whole public health movement in Denmark has been centered around the practice of medicine and particularly around the hospital service. So far as the writer is aware, there is no country in which the hospital service has been more fully developed whether viewed from the standpoint of type of buildings and equipment, quality of the service rendered to the average citizen, extent to which hospitals are used, or cost of the service to the patient.

Practically all of the general hospitals in Denmark are public institutions constructed by the municipalities or counties, or jointly by the two. The hospitals are well distributed over the country. Practically all of them are general hospitals in the truest sense, having special wards or buildings for the diagnosis or treatment of tuber-

culosis, for the treatment of epidemic and venereal diseases, and for the temporary hospitalization of mental cases. The closed staff principle is universal, and the hospital physicians live on the hospital grounds. When a case is sent to a hospital, the attending physician loses all responsibility for the patient. The municipal hospitals are under the direction of a special branch of the municipal government; those operated jointly by a city or county are jointly administered. The director, i. e., the head physician (or physicians) is usually employed on a part-time basis, being allowed to supplement his salary by private consultations at the hospital.

An opportunity was afforded the writer to visit a number of the Danish hospitals in Copenhagen and in the provincial towns. One of the most interesting institutions visited was the State hospital in Copenhagen, operated by the Department of Education primarily as a teaching center for the university medical school. The director of each department is ex-officio professor in the university. This institution has accommodations for 1,000 patients; it was completed in 1910 at a cost of $2,000 per bed. Fifty-three per cent of the patients pay only 50 cents per day, and 20 per cent of them pay nothing. The operating cost is about $3.50 per patient per day, of which 16 per cent is paid by patient's fees. The training school for midwives is operated as a part of this hospital, and there is a large nursing school.

The city of Copenhagen expends nearly $4,000,000 per year for its general, tuberculosis, and insane hospital services, representing an annual per capita expenditure of approximately $6. The average cost per patient per day is slightly over $3, and this average cost seems to prevail generally throughout the country.

The cost of hospital construction in Denmark is nearly as high as that in the United States. The buildings are of a very permanent nature and are well equipped as regards furniture, laboratory, X-ray, hydrotherapy, heliotherapy, and physiotherapy departments.

Private rooms comprise only 10 per cent of the whole hospital capacity, the favorite arrangement being a system of four to six bed wards, in which adequate floor and air space is provided.

Every county has one or more large central hospitals and several smaller ones. In all, there are 175 general hospitals in Denmark with more than 14,000 beds, or 4.5 beds per 1,000 inhabitants. This compares with 2.6 general hospital beds per 1,000 in the United States. The number of patient days amounts to 4,300,000, or 1.4 days in general hospitals for every inhabitant annually, as compared with 0.61 patient days in the United States. In the accompanying table there is given a summary of the information secured concerning the number and type of hospital beds.

TABLE 1.—*Hospital beds in Denmark and the United States*

Number of hospitals	Type	Denmark: Number beds	Denmark: Beds per 1,000 inhabitants	United States, beds per 1,000 inhabitants [1]
	Medical and surgical	9,666	3.1	
	Contagious	3,090	1.0	
	Skin and venereal	1,041	.3	
	Temporary mental	308	.1	
175	All general hospitals	14,105	[2] 4.5	2.6
62	Tuberculosis institutions	3,458	1.1	.44
6	Insane asylums	5,900	[3] 1.8	3.0
4	Feeble-minded and epileptic	3,632	[4] 1.1	
(?)	All others	(?)	(?)	1.04
	Total		8.5	7.08

[1] Hospital Service in the United States. J. A. M. A., vol. 86, No. 14: 1009.
[2] Not including hospital beds in old-age homes and institutions.
[3] Not including 308 beds in general hospitals for mental cases.
[4] Not including special schools in Copenhagen for 300 or private homes with 350 feeble-minded children.

In comparing the hospital facilities of Denmark and this country it should be noted that Denmark has 4.5 and the United States 2.6 general hospital beds per 1,000 inhabitants, and that in Denmark these beds are 87 per cent and in the United States 67 per cent occupied.

The number of beds per capita for mental and nervous cases is approximately the same in the two countries. The number of beds for tuberculosis cases in Denmark is 1.1 per 1,000 inhabitants, and in the United States 0.44. The number of beds in all types of hospitals is for Denmark 8.5 per 1,000 inhabitants, and for the United States 7.1. The figure for the United States, however, includes 1.0 bed per 1,000 in institutions, such as old age homes, etc., while this class of hospital bed is not included in the Danish statistics.

The Control of Communicable Diseases

Measures against epidemic diseases are placed in the hands of local epidemic committees, under the supervision of the National Board of Health, through its county and district medical officers. Reports of cases of contagion are sent each week by all medical practitioners to the district medical officer. When an epidemic occurs, immediate reports are required. Immediate reports are required also for cases of typhoid fever, diphtheria, scarlet fever, meningitis, and poliomyelitis, when they occur at a school or in a house from which milk or food is sold. The diagnosis of contagious diseases is facilitated by the legal right to gratuitous admission to a hospital and by the laboratory facilities which are available at the State Serum Institute and at all local hospitals.

The majority of cases of contagion are isolated in a public hospital, at which gratuitous treatment is provided if they are admitted immediately after the diagnosis is made. Isolation hospitals are plentifully supplied, one bed per 1,000 inhabitants being available. In the larger cities, special hospitals for contagious diseases are used, and in the smaller towns an isolation ward is attached to every public hospital. The hospitalization of a great majority of cases is looked upon as a matter of course. About 90 per cent of all reported cases of diphtheria are hospitalized, and practically all cases of typhoid fever, meningitis, poliomyelitis, and scarlet fever. According to estimates, about 20 per cent of measles and whooping cough patients are hospitalized in Copenhagen; but outside of Copenhagen only a very few are hospitalized. The cubicle system of isolation is not generally practiced, separate rooms or small wards being available for each disease. The local epidemic committee can compel hospitalization in any case in which it is deemed desirable.[1] Cases are released from quarantine by the attending physician. Cases of typhoid fever are not released until three consecutive examinations of urine and feces have been found negative. The local epidemic committees have wide powers in the control of disease carriers.

Owing to the large number of dairies throughout the country, special measures are taken for the prevention of milk infection; and when the sale of milk or milk products is prohibited, compensation is given for losses. The same is true when typhoid or diphtheria carriers are required to discontinue their occupation involving the handling of food and milk. When a case of contagion occurs in a school child the practicing physician notifies the school authorities of that fact. The Minister of Education issues special regulations concerning the control of contagious diseases in schools.

For many years it has been the fundamental rule in Denmark that all expenses in connection with contagious diseases should be borne by the public. The local communities furnish hospital and medical facilities, but the treatment proper is divided between the State and commune, one-half or three-quarters being paid by the State, depending upon the nature of the treatment. The cost to the State (central government) for this service varies between $500,000 and $600,000 per annum.

It was interesting to note that epidemiological studies of diseases are not ordinarily made by medical officers except during epidemics. In fact, the primary responsibility for and control of contagion is

[1] In Denmark there are two forms of gratuitous treatment of communicable diseases: (1) The more endemic communicable diseases—diphtheria, scarlatina, typhoid fever, cerebrospinal meningitis, and others—may be gratuitously treated in an isolation hospital. Such treatment is not compulsory, but is offered to induce patients to be isolated. The offer is usually accepted. (2) The rarer and more dangerous communicable diseases, such as plague, cholera, smallpox, yellow fever, tropical dysentery, etc., are subject to compulsory treatment by public arrangement at public cost, and isolation (in hospital) is compulsory.

placed upon the attending physician and the hospital. Cases of contagious diseases appear to be notified to a degree of completeness which is gratifying. In Table 2 is a comparison of the case incidence, and case fatality rates for certain diseases in Denmark and in the United States.

TABLE 2.—*Case incidence and case fatality rates for Denmark and for the reporting States of the United States, for certain diseases, 1923*

Disease	Denmark				United States[1]	
	Cases	Deaths	Case incidence per 1,000 inhabitants	Case fatality, per cent	Case incidence per 1,000 inhabitants	Case fatality, per cent
Typhoid fever	580	43	0.19	7.4	0 32	22.4
Diphtheria	5,690	155	1.8	2.7	1.31	8.68
Scarlet fever	3,851	39	1.3	1.0	1.56	1.99
Measles	32,166	179	10.7	.5	7.72	1.38
Tuberculosis (pulmonary)	2,893	2,245	.9	77.0	----------	----------
Whooping cough	26,446	677	8.8	2.6	1.61	.54
Gonorrhea	11,115	--------	3.7	----------	1.44	----------
Syphilis	2,496	98	.8	----------	1.68	----------

[1] Rates published in Public Health Reports, vol. 39, No. 47, Nov. 21, 1924, pp. 2889, et.

Skin tests (Schick and Dick) to determine susceptibility to diphtheria and scarlet fever are not used to any appreciable extent, and active immunization against these diseases is not practiced. Diphtheria antitoxin is used in very large doses. The case fatality from this disease for the whole country is 2.7 per cent, and for those cases treated in the epidemic hospital in Copenhagen, 2 per cent. These rates compare with a case fatality of 8.687, in the United States.

Throat cultures formerly were taken from diphtheria and meningitis carriers, but this procedure has been abandoned. An interesting feature of whooping cough control is the routine laboratory diagnosis of the disease provided by the State Serum Institute. This enables an early diagnosis before the onset of the "whoop." This method of diagnosis is said to be accurate in more than 90 per cent of the cases.

Smallpox vaccination.—Vaccination has been compulsory in Denmark for 116 years, and there is, on the average, scarcely one case of smallpox per year occurring in the whole country. When cases of smallpox occur, they are always imported cases. A great majority of vaccinations are done at public expense. In Copenhagen a staff of public vaccinators is employed. In the small towns, vaccination clinics are held twice annually, and in the rural districts, once annually by the district medical officers. The thoroughness of vaccination is controlled by the requirement that all children must be vaccinated before being admitted to school and for the male population, by the revaccination of conscripts. The National Board of Health brings

pressure to bear for the revaccination every seven years of persons who are likely to be exposed to smallpox. All of the vaccine virus used in the country is prepared by the Royal Vaccination Institute and is furnished free to medical officers and to practicing physicians.

Tuberculosis control.—Tuberculosis in Denmark, as in other countries, is an important public health problem and one toward the solution of which much money and effort have been expended. In the campaign against this disease first thought apparently has been given to institutions for the isolation and treatment of early cases and more advanced cases. With 109 beds per 100 annual deaths, Denmark has, proportionately, more institutional accommodations for the treatment of tuberculosis than any other country, and about 2.5 times as many beds per annual death as the United States. In connection with this fact some Danish physicians also invite attention to the death rate in Denmark, which is the lowest of any country in Europe. For each annual death from the disease 2.5 patients are admitted to tuberculosis institutions, but only about one-half of this number of cases are reported tothe health authorities. In Copenhagen, 70 per cent, and in the remainder of the country 33 per cent of all deaths from pulmonary tuberculosis occur in institutions. Several types of tuberculosis institutions are in use. In connection with many of the general hospitals, beds are available for tuberculosis cases. These are of two classes: (1) suspected cases which are hospitalized for diagnosis and classification as to type prior to admission to a sanatorium; and (2) advanced cases for whom sanatorium treatment would be apparently of no value. In all there are nearly 1,000 tuberculosis hospital beds. There are 16 tuberculosis sanatoria located in different parts of the country with nearly 1,400 beds: 3 seaside hospitals with 375 beds for the treatment of advanced nonpulmonary tuberculosis; 9 seaside sanatoria with 480 beds for the treatment of scrofulous children, and a number of other types of institutions, such as invalid's homes, for very chronic cases, a day-cure resort for the partially incapacitated, and a specially constructed apartment for families with a tuberculous member.

Open-air schools and open-window rooms for "pretuberculous children" are not used in Denmark. In Copenhagen and Fredericksberg there are two open-air schools for children with *infective* tuberculosis; and children with enlarged glands or children from tuberculous families are sent to seaside camps, at least one of which is maintained as a part of the school system of Fredericksberg.

The average length of stay for patients in sanatoria is between five and six months. About 40 per cent of all pulmonary tuberculosis patients admitted to sanatoria are in the advanced stage, and 25 per cent are in the incipient or minimal stage. The sanatoria are

well constructed and the methods of treatment are not different from those in similar institutions elsewhere. Sanocrysin is used in some of the institutions visited, being given in small doses beginning with 0.1 gram and increasing to a maximum of 0.5 gram. The treatments are given on alternate days, no serum being used in conjunction with the sanocrysin. In other institutions the use of sanocrysin has been discontinued. Opinions of the sanatoria directors as to the usefulness of this drug vary somewhat. Several of them maintain that it is of no value; others are equally sure that it has a field of usefulness, especially in the treatment of laryngeal tuberculosis.

The Finsen Light Institute, founded in 1893, gives 60,000 treatments each year to 9,000 patients suffering from skin and surgical tuberculosis. The director of the institute states that 90 per cent of the cases of skin tuberculosis are cured. Two types of treatment are used; the concentrated light therapy and the general light baths. In addition to the clinic this institute maintains 127 hospital and sanatorium beds for the use of its patients.

It was interesting to note that heliotherapy has a very important place in the treatment of tuberculosis in Denmark, especially in the treatment of surgical, glandular, and laryngeal forms of the disease. Every general hospital visited was provided with Finsen and mercury quartz lights. The treatment of scrofula by sunlight is carried out extensively at many seaside holiday camps and sanatoria for children. The valuable custom has developed in Denmark of sending children from the larger cities to spend their summer vacations at farm homes. The State railways provide free transportation for them, and each year it is estimated that 25,000 children from Copenhagen spend their summers in the country.

The Government contributes generously to the construction and support of tuberculosis institutions, paying a varying proportion of the cost of the building and from three-fourths to five-sixths of the cost of treatment of persons "without means"—and this phrase is given a very liberal interpretation. The question of payment does not debar any patient from admission to an institution. In addition, relief is granted to families of tuberculous persons undergoing treatment, and where children can not or should not remain in the home, the municipality defrays the expense of boarding out the children.

Finally, very considerable government aid is given to tuberculosis dispensaries amounting to one-half of their operating expenses. The dispensary service is not developed to the same extent as the sanatorium treatment; only in the larger towns are there dispensaries with physicians in attendance. In the smaller towns and rural districts, dispensary service has not been developed, owing, it was stated, to the opposition of the family physicians to having their cases given over to the care of a dispensary physician. Even in

Copenhagen there is very poor coordination between the dispensary service and the sanatoria, although both the dispensaries and some of the sanatoria are under the management of the National Tuberculosis Association.

There is some visiting nurse service, the nurses being paid by sick benefit clubs or municipalities, but the instructive public health nursing service for tuberculosis and other diseases has not been developed to any extent.

Annual State grants for combating tuberculosis amount to more than $1,000,000, or about 36 cents for every inhabitant, and expenditures by all agencies for this purpose amount to an estimated total of 50 cents per capita.

The infectiousness of tuberculosis seems to be emphasized in Denmark, as shown by the provisions of law which require a medical certificate of freedom from this disease for wet-nurses, employees in childrens' homes, day nurseries, and crèches, for foster parents and children; for teachers, midwives, and nurses; and even for certain government postal and railway employees. Compulsory isolation or hospitalization of open cases can be ordered by the local epidemic committees.

TABLE 3.—*Comparison of tuberculosis death rates per 100,000 inhabitants in Denmark and the United States*

	Cities		Rural	
	All forms	Pulmonary	All forms	Pulmonary
Denmark (1924)	110	84	92	65
Registration area of United States (1923)	95.3	83.1	91.9	83.9

In Table 3 a comparison is made between the tuberculosis death rates in Denmark and the United States. Of particular interest are the higher rates from nonpulmonary tuberculosis, especially in the Danish rural districts. It is suggested that the high prevalence of bovine infection and the small proportion of pasteurized milk in Denmark may be a factor in causing this condition.

The tuberculosis death rate has declined to a marked extent in Denmark. The death rate from all forms of the disease in the cities during the past five years is only 46 per cent of the rate prevailing for the first five years of this century. During the same period, the death rate from pulmonary tuberculosis has declined 42.9 per cent, although it is proportionately higher than in the United States. It has been impossible here, as elsewhere, to determine the relative importance of the many factors operating to bring about this decline. Along with the extensive efforts directed against the disease, important

sociological changes in the country have taken place. Standards of living have progressively improved, public education has been extended, much social welfare legislation has been enacted, general medical service has improved, and the physical education movement has grown rapidly. A decision, therefore, as to the relative influence of the direct measures of tuberculosis control and of the improved economic and social conditions of the country in bringing about a decline in the death rate will depend upon the point of view of the observer as to whether tuberculosis is primarily a sociological or a medical problem.

Venereal disease control.—For nearly 150 years regulations have been in effect in Denmark providing the public free treatment for all cases of venereal disease without regard to the ability of the patient to pay, and requiring all venereally infected persons to submit themselves to medical treatment. Free treatment and the obligation to submit to treatment have been the two guiding principles in the control of these diseases.

Reports of cases of venereal diseases are incomplete in Denmark as in other countries. In 1923, 11,115 cases of gonorrhea were reported, and 2,326 of acquired syphilis, giving a reported case incidence of 3.3 and 0.8 per thousand inhabitants, respectively.

Some estimate as to the presence and trend of venereal infections can be learned from the clinic records in Copenhagen, and from the number of Wassermann examinations made at the State Serum Institute, where all Wassermann examinations for the entire country are made. In Copenhagen, the number of cases of gonorrhea treated annually amounts to approximately 270 per 100,000, while cases of syphilis approximate 30 per 100,000 inhabitants. Some of the Danish physicians furnish an estimate that new infections of venereal diseases have decreased 33 per cent during the present century, and the opinion is generally held that syphilis in particular has decreased in prevalence. This result is attributed to the facts that patients seek medical treatment early in the course of the disease, that there is no unqualified medical practice or advertising of patent medicines, and that houses of prostitution have been abolished since 1901.

The facilities for treating venereal cases are most extensive. The furnishing of free medical treatment is one of the important functions of each of the 73 district medical officers of health. In one typical county, having a population of about 100,000, the health officer receives reports each year of about 500 cases of venereal disease; approximately one-half of these apply to the health officer for treatment. One-half of the cases of syphilis applying for public treatment in this district are hospitalized. Every general hospital in the country has special wards or special beds for skin and venereal cases, totaling, for the whole country, more than 1,000 beds. Cases of

venereal disease which are hospitalized can be held in the hospital until discharge is permitted by the medical authorities. In Copenhagen, seven venereal-disease clinics are operated by the city health department, employing a staff of 12 part-time physicians.

There are three interesting institutions called "Welander Homes," which accommodate about 82 children suffering from congenital syphilis. In these homes, the children are given the best medical treatment in conjunction with hygienic care and education. They are discharged after several years' residence, when the maximum possible benefit has been secured from the treatment.

Care of Mental Diseases

The care of mental disorders in Denmark is under the jurisdiction of the central government and is lodged in a special department in the ministry of social affairs. The National Board of Health is consulted concerning construction and sanitation of institutions, nutrition of the patients, etc. There are six State hospitals for mental diseases and two mental hospitals in Copenhagen, having a total bed capacity of nearly 6,000, or 1.8 beds per 1,000 population. In addition, there are four institutions for the feeble-minded, with 3,500 beds, and two small homes for epileptics. The operating costs of the mental disease hospitals average $1.50 per patient daily. Of this amount 70 per cent is paid from public funds and 30 per cent is paid by the patients either directly or through their sick benefit clubs.

At the large mental disease hospital at Nykoeburg, with a capacity for 820 patients, there are 7 physicians, 93 trained nurses, and 80 probationers and attendants. Graduate female nurses occupy all of the higher nursing positions. Graduate nurses and student nurses are used in all wards, being assisted by a few male attendants in the case of violent male patients. Each mental hospital is administered by a superintendent who is not a physician, but he is subject to the decisions of the head physician in all matters regarding treatment and welfare of the patients.

At one of the mental hospitals a plan of family nursing has been in effect for a number of years with results which are said to be entirely satisfactory. Under this plan, selected patients are boarded out at farm homes and are visited twice monthly by a private practitioner in the neighborhood. The placement of the patients is directed by the medical superintendent of a near-by mental hospital.

No mental hygiene activities, comparable to child guidance clinics or mental clinics in this country, are being conducted in Denmark. It is beyond the scope of this paper to discuss the methods of commitment and other legal questions regarding insanity.

Sick Benefit Clubs

Denmark has a system of voluntary insurance against sickness which includes 60 per cent of the population between the ages of 15 and 60 years. Approximately one and one-third million people have membership in the sick benefit clubs, and when one of the parents is a member, the medical benefits also extend to children under 15. The present system has evolved, during many years, from the voluntary and mutual insurance clubs associated with the old guilds. In 1892, a law was passed which offered Government recognition in return for certain privileges and obligations. The privileges included a subsidy, and rights to hospital treatment at reduced terms. The obligations related to supervision of budgets and accounts. The effect of the law was to promote a voluntary combination of individual clubs into central unions for counties or districts, to establish minimum cash benefits, and to coordinate the many existing clubs into a national system of voluntary insurance. The laws have been changed in some particulars, in accordance with the expressed wishes of the clubs themselves. In scope a sick benefit club usually is limited to some special locality, less frequently it is connected with a special trade. The conditions governing membership relate to—

(1) *Age.*—The age limits are from 14 to 40 years at the time of admission.

(2) *State of health.*—A separate account is kept of each two groups of members, (*a*) those in perfect health, (*b*) those suffering from a chronic disease. The State bears the additional cost of the second group.

(3) *Income and property requirements* are somewhat detailed; but, in general, all except the more wealthy are eligible.

Benefits.—Membership in a sick benefit club entitles the member to medical and hospital treatment, including mental disease and tuberculosis hospitals; a daily cash benefit for illness varying from 12 cents to $1.60 for 26 weeks in 12 consecutive months, or 60 weeks in three years; and for assistance to women in childbirth. In addition to the above compulsory services, many clubs provide specialist's attendance, dentistry, medicine, home nursing, convalescent home or health resort treatment, etc. The Government contributes one-fourth toward the expense of the above services, pays annually 80 cents to every club for each member, and if a member continues sick beyond the time limit pays public relief.

The Government subsidies amount to about $2.20 per member, which, together with the expenditures by the clubs, make a total expenditure per member each year of nearly $7. This is distributed as follows:

	Per cent
Medical, specialist, and dental service	45.4
Hospital and institutional treatment	13
Medicine	10
Cash benefits	16.5
Administration	12

The premium per year per member varies somewhat, depending upon the amount of the cash benefit, the extent of the service rendered, etc., averaging in 1921 about $4.50 per member.

A premium for invalidity insurance is collected also from all members between 18 and 62, varying according to age from $1.40 to $2.70; and under the workmen's compensation act employers are required to insure all employees. The annual cost of this amounts to about $1.50 per worker.

The sick benefit clubs have a public health interest, not only because they have assured to a large part of the population adequate and early medical treatment, which is often the best means of prevention, but because they have done much to free the individual from the economic consequences of disease. Owing to the medical service available through the clubs, infant and child health activities of health departments have not been so necessary as in other countries. The expenditures from public funds, therefore, toward the support of these clubs are looked upon by the Danes as an indirect subsidy to the public health service.

Social Legislation

In addition to the sick benefit laws, other social legislation should be mentioned, largely because it illustrates how thoroughly the country has organized its social services.

Poor law.—As in most countries, paupers are provided with medical and institutional care and cash benefits. This relief, however, invokes certain disabilities, such as loss of franchise, etc., so that it is utilized only by the "undeserving poor," and in most cases public relief is obtained under other laws without the attending disabilities.

Temporary public assistance is given to the "deserving poor" who are trying to support themselves without applying to the poor law administration.

Old age pensions are paid to impecunious citizens over 65 years of age, amounting to about $125 per annum per pensioner and involving a total annual public expenditure of about $18,000,000.

Under the child welfare act, relief for children of widows is provided to the extent of $30 to $50 per child annually when the widows' income is below a certain minimum. For illegitimate children and unmarried mothers public care is provided, and the father is required to reimburse three-fifths of the expenses up to the age of 18 when-

ever possible. A divorced or deserted wife also has the right to relief from public funds.

Invalidity insurance has been mentioned in connection with sick benefit clubs. The funds are secured from premiums paid by insured persons, contributions from employers, and subsidies from the State and municipality. The invalidity pension of $220 per year is paid when the working capacity of the applicant is reduced two-thirds or more. The reduction in working capacity is calculated rather liberally by a central tribunal after a complete medical examination. In addition, nursing, medical treatment, and prosthetic appliances are provided to lessen the degree of invalidity.

Workmen's compensation.—All persons engaged in any kind of work, whether for salary or wages, come within the scope of the act. Small tradesmen, artisans, and farmers may insure themselves, the government assisting them in paying premiums. Employers must cover their legal risks by insurance in an insurance company. Benefits are paid for accidents and industrial diseases. In the case of death, a lump sum is paid equal to five times the annual earnings of the deceased, not exceeding $3,000 nor less than $1,500. For incapacity not fatal, two-thirds of the actual earnings are paid daily, after the lapse of 13 weeks, during which time the sick benefit clubs will usually have paid sick benefits and provided medical treatment. For permanent partial disability a lump sum is paid (the maximum being $6,000), depending upon the earnings and extent of impairment.

Child Welfare

Denmark makes very elaborate provisions for child welfare. In this, as in other phases of social welfare, the primary emphasis seems to be placed upon education, moral welfare, care, and treatment rather than upon preventive measures. Child-welfare activities are supervised by a department in the Ministry of Social Affairs, and are carried out in the various local communities through child-welfare councils. These councils are appointed by the local (parish or municipal) authorities and exercise jurisdiction over all questions pertaining to the moral and, partly, the sanitary phases of child welfare. They also perform the functions of juvenile courts. These councils do not ordinarily have a medical member, a fact which was commented upon adversely by a number of Danish physicians.

The measures taken for child welfare in Denmark may be summarized as follows:

(1) The bringing up of children away from their homes, and assistance to parents in bringing up their children. Nearly 5,000 children are now being cared for away from their homes (1.4 per 1,000 inhabitants). The institutions in which these children are placed include 22 reformatories and industrial schools with a capacity

for more than 1,000 children, 114 childrens' homes accommodating 2,700 children, 18 homes for infants accommodating 425 children, and 48 detention and observation homes with a capacity for 1,200 children. In addition to the children placed in these institutions it is estimated that one-half of the wards of the child-welfare councils are placed in private families.

(2) In addition to the children who are wards of the child-welfare councils, elaborate provisions are made for the care of children during the day while the mother is at work. There is a total of 216 day industrial schools, recreation homes, public kindergartens, crèches, and day nurseries accommodating more than 9,000 children.

The expenditures by the State for public child welfare amount to more than a million dollars, and by municipalities $250,000 per year. It is said that the major cost of child welfare, however, is borne by private organizations.

(3) A description will be given elsewhere in this report of the institutions for the crippled, the blind, the deaf, the imbecile, the epileptic, and tuberculous children, which have a total capacity for 3,045 persons.

(4) In addition to the care given to the various classes of children mentioned above, permanent poor relief is given to assist parents in the raising of their children, about 15,000 families receiving this aid.

(5) The birth of every illegitimate child must be reported by the attending physician or midwife to the child-welfare council, which organization exercises intimate supervision over these children. The mortality among illegitimate children was formerly very high, but now approximates that of children born in wedlock. About 8,000 illegitimate children are born each year, representing about 10 per cent of the total births. Child-welfare councils and boards of guardians pay each year approximately $1,000,000 toward the care of illegitimate children, approximately one-half of which is refunded by the alleged fathers. A number of institutions are operated for the care of unmarried mothers and their children or for the children alone.

(6) Other activities concerning child welfare relate to the enforcement of very comprehensive child-labor laws, prevention of cruelty to children, etc.

Although very extensive measures are carried out for the welfare of children and strict rules exercised concerning the sanitation and medical attendance at all children's institutions, the writer's impressions are that this movement would be more effective if medical direction were provided for many of its phases, if trained public-health nurses were substituted for untrained social-welfare visitors,

if better coordination existed between the prenatal, infant, and school welfare services, and if more stress were placed upon prevention rather than treatment.

Child Hygiene

Measures for child hygiene per se are not extensively developed in Denmark. There is apparently much truth in the statement made by the Danes to the effect that the extensive child-welfare activities and the ample provision for medical service provided through sick-benefit clubs and hospitals obviate the necessity for extensive child-hygiene activities, such as are carried out in some other countries. Prenatal clinics, such as exist in the larger centers in the United States, have not been developed in Denmark, with the exception of one such clinic at the State Hospital. In Copenhagen there are eight baby clinics conducted by a church organization with grants from the city and State. About 1,200 infants are under supervision at these clinics, representing more than 10 per cent of the infant population. They are held weekly or biweekly and admit only infants who are breast fed. This restriction is made in order to encourage breast feeding of infants. The mothers are given 1 quart of milk a day for their own use if they attend the clinics regularly.

School Hygiene

School physicians are not employed at present except in a few of the larger towns. Some of the smaller towns in the past have employed school physicians, but upon inquiry as to why their services were discontinued several school superintendents and district medical officers stated that "they could not make a living." In other words, the opinion prevails that medical service to the public is so complete there is no great need for a public-school physician to examine the children.

In Copenhagen, 30 school physicians are employed on part-time service, and an examination of all children is made shortly after they enter school and usually before graduation. Visits are made by the doctor to the school twice each week, and the teachers send to the physician selected pupils for observation. Whenever defects are found, parents are notified, and if the defect is not corrected, the parent is requested to come to the school for consultation with the physician. Very little "follow up" work is done, it being stated that in practically all instances the parents followed the advice of the school physician without an additional personal appeal by school nurses. The school physicians supervise sanitary arrangements at the schools and are notified when infectious diseases occur.

The most important duty of the eight school nurses in Copenhagen seems to be to assist the doctors in the treatment of scabies

and pediculosis and to render first aid. Health education has received much emphasis, and all teachers at secondary schools are required to take a course and pass an examination in school hygiene. The course is given by a special medical lecturer.

The hygienic arrangements at all schools visited seemed excellent. Much emphasis is placed on the teaching of dietetics and on physical education. Baths are given at the schools every two weeks and school lunches are provided to a greater extent than in this country. These lunches are offered at a very moderate cost and are furnished free to a considerable number of the children.

Two very well equipped dental clinics are in operation in Copenhagen, one in Fredericksberg and 12 in various provincial towns. The two clinics in Copenhagen serve the four lower grades in half the school system and furnish emergency dental treatment to children in the upper grades. Additional clinics are to be added in the near future. Examinations are made of these children each year at the clinics, and 20,000 children are treated annually. Ninety per cent of the children needing dental attention avail themselves of the service of the clinic. The cost of the service for each child treated is $1.25.

Physical education.—One of the very interesting public health activities in Denmark is the thorough system of physical education. Practically all school buildings are provided with gymnasiums; the teachers of physical education frequently teach other branches, so that there is a high degree of coordination between the mental and physical instruction. At the final examinations in secondary schools grades are given for physical exercises in the same manner as for other subjects.

Physical training is not confined to the schools. All over the country there are gymnastic associations, 831 in number, with about 1,500 teachers and with a membership of 35,000 young men and women. A considerable amount in Government grants is given to train teachers of gymnastics. A very interesting gymnastic high school at Ollerup was visited. The director of this institution has developed a system of gymnastics of international repute. A group of 30 American students and teachers of physical education are taking a post-graduate course at this institution during the current year.

Care of the Crippled, Blind, and Deaf

Crippled.—Care of the crippled is conducted mainly by private initiative with a State subsidy of $170,000, annually. This work is centered at the Institute for Crippled Children in Copenhagen, which was founded in 1871 and which is said to be the first of its kind in the world. At this institution a clinic is maintained to

which 2,000 new patients are admitted and at which nearly 10,000 orthopedic consultations are given annually. Hospital beds are available for cases requiring hospitalization. In addition to the orthopedic clinic, there is a school where education comparable to that of other schools is given. Most of the children live at the institutions, and all are trained in some occupation suitable to their physical and mental status. In connection with the institution there is a seaside sanatorium with accommodations for 240 patients.

Blind.—In Denmark there are about 1,500 persons classified as blind. Upon inquiring as to the causes of blindness, it was interesting to learn that smallpox blindness is unknown; that ophthalmia-neonatorum has practically disappeared since 1900, when the use of silver nitrate was required for all newborn children with a result so satisfactory that only four cases have developed in the country since 1910; and that xerophthalmia was responsible for the development of 42 cases of blindness during the war. This latter disease appeared in a large number of children, due to the fact that practically all of the butter in the country was exported and skimmed milk and butter substitutes were used extensively.

There are two institutions for the training of blind children, with a combined capacity for about 220 pupils. At these institutions the children are educated up to the age of 18 or 20.

The city of Copenhagen maintains special schools for children of weak sight.

Deaf mutes.—Since 1817 there has been compulsory education for all deaf mutes, of whom there are about 1,800 now in Denmark. These children are classified as partially or totally deaf, and the totally deaf are further classified into three groups, depending upon their intelligence. All except the least intelligent are taught lip reading. In all, there are five institutions for the education of deaf mutes, at which the cost is practically gratis.

As a part of the Copenhagen school system there is a school for the hard of hearing. Monthly physical examinations and hearing tests are made of all pupils and daily aural irrigations are given.

Milk Sanitation

Dairying is the most important single industry in the country and forms the backbone of Danish prosperity. The value of exported butter exceeds $130,000,000 per annum and the export value of all dairy products reaches a total of nearly $200,000,000 and constitutes one-third of the value of all exports. Like so many of the industries and activities in Denmark, dairying is organized on a cooperative basis. About 125,000 milk producers (dairy farmers), owning more than 1,391,000 cows, are members of the 900 cooperative dairies,

through which a large part of the dairy products of the country is handled.

In view of the highly developed state of this industry it seemed desirable to study the measures which are in effect to safeguard the sanitary quality of dairy products. Like most other sanitary problems, the control of milk supplies is mainly a function of local (municipal) authorities. The individual municipality is free to decide whether or not any sanitary control is to be exercised, and the nature and extent of this control, subject only to approval of the regulations by the Home Office.

In addition to municipal regulations, the Ministry of Justice, under the general authority of a pure-food law, has decreed certain regulations applicable to the whole country. These relate not so particularly to sanitary matters as to minimum requirements for the composition of milk, especially percentage of fat, solids, and the like, to prevent adulteration. These regulations define Pasteurization and also "milk for children."

Pasteurization.—The use of Pasteurized milk in Danish cities, as judged by American standards, is not extensive. In Copenhagen, the two largest dairies report that about 40 per cent of their supply is Pasteurized, and in other towns where inquiry was made the proportion of Pasteurized milk was considerably less. The "flash method" of Pasteurization is the only one in use. The regulations of the Ministry of Justice provide that—

> Milk or cream may be designated as Pasteurized only in case the milk or cream not later than 24 hours after milking has been heated to at least 80° C. and there after cooled to 12° C. Pasteurized milk or cream must not give reaction to the paraphenylendiamin test (Storch's reaction), and the name of the firm and date of Pasteurization must appear on the container.

In the dairies all milk for butter making and skimmed milk returned from the dairies to the producers is Pasteurized.

"*Children's milk.*"—This corresponds in general to "certified milk" in American cities, with the important difference that its cost is only 2.5 to 3 cents more per liter than ordinary milk. The regulations of the Ministry of Justice require "children's milk" to be from cows free from tuberculosis as shown by an annual tuberculin test and a fortnightly veterinary inspection of the cows, and that it comply with the regulations of the municipality concerned. Special requirements in Copenhagen for "children's milk" include the use of a washable milking suit, cleanliness of the stable, cooling of the milk to 8° C., and a negative reductose test for 5 hours. In Copenhagen, less than 5 per cent of the total milk supply meets the requirements of "children's milk," and there is sale for only 3 per cent under this designation. In the other cities a smaller proportion, and in some cities none, of the milk is classified as children's milk.

Milk control measures by municipalities.—As may be expected, the nature and extent of milk control measures by different municipalities varies greatly. Many of the smaller cities exercise no control, others employ a veterinary inspector or use the sanitary police more or less for this purpose. The milk control regulations in Copenhagen are very complete as regards the examination of the cows by veterinarians, the health of the cows, the cleanliness of the stables, the wearing of washable clothes by the milkers, the absence of dirt in the milk, the reporting and removal of cases of communicable diseases occurring on dairy farms, etc.

The expenses of the enforcement of the regulations as they apply to dairy farms are borne almost entirely by the Copenhagen receivers of the milk, who employ 130 veterinary surgeons (part time) for this purpose. The city employs two veterinary surgeons who supervise milk production and handling, and who are assisted by the sanitary police in taking temperatures of milk being shipped to the city and in collecting samples for examination. There is practically no bacteriological control of milk in Copenhagen or elsewhere in the country. In place of this, however, the temperature, the absence of dirt, and the reductase test are used as criteria of quality. About 12,000 samples are examined in Copenhagen per year. In Denmark, milk is not graded according to quality (except the special "children's milk" described above) by the municipalities, and it is not the usual practice for the city to control, by bacteriological methods, the efficiency of Pasteurization or of methods of cleaning and sterilizing milk bottles, utensils, or milk plant machinery. The sanitary control exercised by the dairy plants themselves is very strict and complete. Milk is bought at the milk plants, not only on the basis of its content of butterfat, but also on the basis of its sanitary quality. The minimum standards vary somewhat, but in general, if the milk is visibly dirty, too warm, or decolorized too quickly by the reductase test, the farmer is paid less than the market price, or if the milk repeatedly is sub-standard, it is rejected entirely. This gives a very direct economic urge to the producer to maintain the quality of his product.

Cases of communicable disease at dairy farms seem to be well reported. The cooperative dairies compensate the farmer for any losses incurred in the restriction of milk sale by reason of the occurrence of contagion, and free hospital treatment is provided so that the incentives to hide cases of human contagion are largely removed.

The sanitary conscience of the Danish people is highly developed, and a high standard of cleanliness was observed at all of the dairy farms and plants visited. It was noted, however, that the facilities for sterilizing milk utensils at some of the farms were inadequate; that the design of some of the milk-plant machinery made its cleaning difficult, and that hand-capping of the bottles is still practiced.

At one "model farm" supplying "children's milk," physical examinations of the employees are made by a physician, but this is not the general practice either for employees at the dairy farms or at milk plants.

Milk-borne epidemics have occurred in Copenhagen and elsewhere, but in the limited time available no complete reports of these could be collected.

Bovine tuberculosis.—Except for those cows supplying "children's milk," freedom from tuberculosis, as shown by the tuberculin test, is not required. Veterinary surgeons examine the cows periodically (usually monthly) for clinical signs of disease and note carefully the condition of the udder. Such an examination will disclose only advanced tuberculosis and demonstrable udder lesions, a small percentage of the total of infected cows. Since tubercle bacilli may be excreted through an apparently healthy udder, and since milk may be infected by bacilli from the feces of cows with lung tuberculosis, it is obvious that this system by no means excludes bovine tubercle bacilli from the milk. This seems to have an added sanitary significance when the small percentage of Pasteurized and children's milk is considered.

Although some progress has been made in bovine tuberculosis control by the breeding of uninfected herds after the Bang method (which is well known and will not be described here), this disease is still very prevalent and Professor Bang concludes that it is almost as prevalent now as it was 25 years ago. The farmers generally do not seem disposed to undertake the eradication of tuberculosis in their herds, as is shown by the fact that although more than 750,000 cattle were owned by members of dairy associations, less than 48,000 were tested in the whole country in 1922. Of these, 11.9 per cent reacted to the test, and of those tested the first time, 26.1 per cent reacted. The prevalence of the disease is further illustrated by the fact that of 163,000 cattle slaughtered during 1922, tuberculosis lesions were found in 28.85 per cent.

It is interesting to note that all skimmed milk from dairies which is returned to the farms for the feeding of calves and pigs is required to be Pasteurized to prevent the transmission of tuberculosis and other diseases to those animals.

The State pays a partial compensation to owners of cattle which are required to be killed because of udder tuberculosis. Each year only 700 to 800 cows with udder lesions are destroyed.

Water Supplies

Public water supplies are in use in the cities and even in some of the very small villages. Copenhagen has a very extensive supply secured from a large number of wells, varying in depth from 50 to

150 feet. The water from these wells is sterile. It is collected from the various batteries of wells and treated by aeration and filtration to remove iron. The per capita consumption of water in Copenhagen is about 36 gallons daily.

Sewage Disposal

Public sewer systems, likewise, are in use, although none of the towns are completely sewered. In Copenhagen there is one water-closet for every four inhabitants. In the unsewered districts of the towns, and even at the rural homes and schools, the prevailing type of privy is the can type. In the larger cities they are cleaned by a municipal scavenger service, while at the farm homes and in the smaller villages the occupants of the houses care for the disposal of the excreta. The regulations in Copenhagen and other large cities require that the privies be of tight construction, that the seats be provided with lids, and that they be ventilated.

Meat Inspection

The inspection of meat is under the jurisdiction of the national Department of Agriculture and is supplemented by regulations of the local health committee in most of the towns. The extent to which the local inspection is carried out varies among the different municipalities. All exporting shaughterhouses and all meat for export are subject to strict State control.

Discussion

In the foregoing report many details of the public health organization of Denmark have of necessity been omitted. It is hoped, however, that the reader can gain some conception of the policies and procedures which characterize the Danish public health system.

What, in brief, impresses the public health student in Denmark? The complete, elaborate, and expensive provisions which are made for the care of the unfortunate members of society are constantly noticed. The splendidly organized system of curative medicine, under which medical, hospital, dental, nursing, sanatorium, asylum, in fact every type of care is furnished to all in need thereof free, or at a cost within the ability of all to pay, forms the backbone of the public health system. Much consideration is given to child welfare, to the crippled, the blind, the deaf, the scrofulous, the illegitimate, the orphan, to the aged, to the insane, and even to the criminal. The sickness, unemployment, accident, old age, and burial insurance systems are most complete. The high standards of education and the absence of illiteracy, the even distribution of wealth, and the absence of extreme poverty and slums, are striking.

There is a uniformly high standard of medical, dental, nursing, pharmaceutical, and midwife education. The physicians are held in high public esteem; there is an absence of quackery, and the economic and social position of the physicians is comparatively good. The physical vigor of the people is noticeable and undoubtedly is related to their passion for physical training as well as to the racial stock and their economic and social progress. A cooperative spirit everywhere is manifest; and this is so basically a part of their nature that it is reflected not only in their whole social system, but even in the games which the children play. Along with this spirit of mutual self help, individual initiative and responsibility have been developed with the result that their highly developed and complicated social order seems to have been evolved by and for the people themselves and not to have been imposed upon the country by some central authority or by some one class of the people.

All of these things impress the visitor to Denmark. Along with these impressions, there constantly arises the question of how any nation with no natural resources except a fertile soil and a good racial stock can continue to secure the money with which to support so lavishly their many social welfare services. This is a question which intrigued the interest of all the delegates and is one upon which even the best political economists disagree. In these circumstances it is perhaps out of place for a mere sanitarian to hazard an opinion.

It is true that taxes are high; a physician with a moderate income pays 25 per cent of his income, and a charwoman 12 per cent of her income in taxes, for example, and it is practically impossible now to accumulate a fortune in Denmark. On the other hand, a fortune in Denmark is not necessary in order for an individual to enjoy the "blessings of civilization." For the taxes which are paid, very considerable and tangible services are rendered by the government (state and local). The National Government expends each year one-half of its income for what is termed public health (more properly public welfare), and expenditures by local governments exceed those of the state, with the result that, each year, public expenditures for this purpose average $13 for every inhabitant.

It is true that economic conditions as influenced by world trade, etc., have necessitated a reduction in taxes, and a reduction of 10 per cent in government expenditures has been ordered. It is believed that these reductions will be effected without curtailing, to a disastrous extent, the necessary expenditures for public welfare, and that Denmark will not dispense with the admirable services which have done so much to promote the well being of her citizens.

Each country evolves a social system best suited to its particular needs, and although the public health system of Denmark as a whole could not be applied to the United States, for reasons which are too

numerous and obvious to recount here, it has a number of features which could be emulated to advantage.

Although the reader probably will have made comparisons between the Danish and American public health organizations, it may not be inappropriate to mention briefly by way of recapitulation some of the outstanding features of the two systems.

The adequate provision and extensive use of the facilities for treatment of disease, and the voluntary insurance against the economic consequences of disease for the great mass of people of small means, are the most prominent features of the Danish public health movement and serve to emphasize the fact that this is an unsolved and important problem in the United States.

The uniformly high standards of medical education which have been in effect in Denmark for many years have produced a high quality of medical service. This should be assured in the future in this country to a great extent by the efforts made during recent years to improve medical education. There still remains in the United States the problem of the pseudo-medical practitioner and the quack. The Danish public apparently recognizes the value of, and necessity for, scientific medical service to a greater extent than is the case in this country.

The principle of public responsibility for the prompt and adequate treatment of infectious diseases, as a means of preventing their spread, is universally accepted in Denmark. This principle does not find general application in the United States.

The close harmony and cooperation which has always existed between the practicing Danish physicians and public health officers has been of advantage to the profession and to the public alike.

The efficiency noted in all types of public service, while not ideal in Denmark, impresses one as being much above the average in this country. In public health and medical work particularly, the apparent absence of "politics" in determining appointments and the high quality of service were most impressive.

The application of mental hygiene through mental and child guidance clinics has not been developed in Denmark.

Sanitary engineering as a profession is better developed in the United States. There are no engineers attached to the National Board of Health, and those employed by the larger cities are concerned primarily with housing. The design and construction of water supply and sewerage systems are left entirely to the municipal engineers.

Insufficient importance is attached to epidemiology in Denmark. Sharp outbreaks of disease are investigated, but epidemiological studies of disease occurrence are not made to the same extent as in the best health departments here.

Uniform rules and regulations are not laid down for the control of contagion. Since, however, the individual doctor assumes and discharges properly so large a share of responsibility in connection with each case of contagion, this may be of no great importance. Schick testing and active immunization against diphtheria are not extensively used.

Part-time as contrasted with full-time service in public health work prevails, and although efforts are being made to bring about a change, there is some divergence of opinion whether full-time or part-time officials will best suit Danish requirements.

Public health nurses are used to a slight extent as compared with this country, although bedside nursing-care for the sick is being widely used.

The medical profession of Denmark has not especially interested itself in directing certain phases of the public welfare movement, particularly child welfare, with the result that this work has suffered in efficiency by lack of medical guidance. The same observation may be made concerning certain phases of public health and welfare in many communities in the United States.

In conclusion, it is desired to state that this description of the public health organization of Denmark would not be complete unless mention were made of the hospitable and cordial welcome which was everywhere accorded the delegates to the interchange, by the physicians, medical officers, other public officials, and the public generally.

THE COST OF A SMALLPOX EPIDEMIC

The cost to a community, not in suffering, disfigurement, and death, but in taxpayers' money, of an epidemic of smallpox is not often used as an argument for vaccination; and it would not seem necessary to offer it, for a desire for individual and community protection from a dangerous and loathsome disease would certainly appear to be sufficient reason for the average intelligent person to seek the beneficent protection of this simple expedient. With the vast amount of indisputable evidence that vaccination protects against smallpox, the desire for personal security and community and patriotic public health ideals should be sufficiently stimulating to bring about universal voluntary vaccination. This millenium has not yet arrived, however; and, in the meantime, with memories of a serious outbreak dimmed by the passing years, and lulled into a false sense of security, people are with difficulty aroused to the point of being vaccinated and revaccinated. While it is true that only the unvaccinated need worry about the risk of infection, the vaccinated are called upon to help bear the cost of a smallpox out-

break, as is evidenced by the following note on a smallpox epidemic in England, published in *The Medical Officer* for May 7, 1927:

The smallpox outbreak in Monmouthshire has so far cost the ratepayers £10,000 in capital expenditure and equipment, while the maintenance of 200 beds for six months will mean another £13,000. These figures are given by Dr. D. Rocyn-Jones, the county medical officer, who states that of the 773 cases reported since the commencement of the outbreak 173 are still in hospital. Doctor Rocyn-Jones expresses his great regret that "the position has not been rendered any easier by the opposition of an ill-informed and foolish section of the public, aided and abetted by the poisonous literature assiduously distributed through the post by spurious medical experts whose contribution to this epidemic will mean increased suffering and disfigurement and the expenditure of thousands of pounds unnecessarily."

Statistics reveal that 90 per cent of the victims were unvaccinated.

Calling attention to the fact that the United States is achieving the unenviable reputation of competing with other unvaccinated countries in the number of cases of smallpox reported annually, Dr. Charles V. Chapin, superintendent of health of Providence, R. I., recently had the following to say about vaccination:[1]

I always thought that the best proof of the value of vaccination is given by an early experiment in Massachusetts. In 1802, 19 boys were vaccinated. Three months later 12 of the boys were inoculated with smallpox matter. They remained well, not because the virus was poor, for the same matter caused regular smallpox in two other boys who had not been vaccinated. To test further the protective power of vaccination, the 19 boys were again inoculated with smallpox (12 for the second time) and remained free from the disease. Why should one seek further proof of the value of vaccination?

Smallpox is a very contagious disease, almost as much so as measles. Most unprotected persons closely exposed to it contract it. During the last 40 years I have cared for many cases of smallpox. I must have seen nearly 200 doctors, nurses, ward maids, and others brought in contact with these patients. Only one attendant got smallpox. I, of course, intended every one to be vaccinated, but one nurse got by and she contracted smallpox after one short exposure. At the time I found one of my early cases of smallpox, I had a 2-months-old baby at home. He was promptly vaccinated. Our "pest house" was beautifully located on the shores of the bay, and every afternoon when I drove out to see the patients I took my wife and baby with me, knowing I could do so without danger to them. Health officers and doctors who see smallpox believe in vaccination. They *know* it protects.

Many persons are afraid of vaccination. They say it is dangerous. Doctor Leonard, of our board of health, has vaccinated almost exactly 150,000 persons in Providence. Not one has died or lost a limb or been inoculated with any other disease. Of course, there are the three-day fever and enlarged glands in some cases. A small percentage also have had sore arms, usually because the vesicle had been broken and they had neglected to show it to the doctor, though some have had trouble from wearing a shield, against which I have always advised. Vaccination, so far as serious danger is concerned, is safer than picking blueberries or eating a saucer of ice cream. I have known of blood poisoning to result from a briar scratch and I have seen diphtheria result from infected ice cream. If health officers were not sure that vaccination is safe, we would not be fools enough to vaccinate ourselves and families every two or three years.

[1] Quoted from the Ohio Health News for Apr. 15, 1927.

We hear a great deal about patriotism, usually of the military sort, but there are other ways of serving one's country than pouring out one's blood and treasure. One is to make your community a healthier place to live in. Will you continue unvaccinated and so help this country to vie with India, Mexico, and Russia for the tail-end place in the race for freedom from smallpox, or will you be vaccinated to-day and help exterminate this disease and make it impossible for your health officer ever to be obligated to take you to the pest house?

AUTOMOBILE FATALITIES, APRIL 26, 1925, TO APRIL 23, 1927

The Department of Commerce announces that during the four weeks ended April 23, 1927, automobile accidents were responsible for 491 deaths in 78 large cities of the United States. As compared with 423 deaths during the four weeks ending April 24, 1926. Most of these deaths were the result of accidents which occurred within the corporate limits of the cities, although some accidents occurred outside of the city limits.

For comparison, the number of deaths due to automobile accidents within city limits is desirable. Such figures are available for the same four-week periods for 58 cities, the four-week figure in 1927 being 305 as contrasted with 287 for the corresponding four weeks in 1926.

Considering, by four-week periods since May, 1925, the total number of deaths from automobile accidents for 78 cities, regardless of place of accident, the lowest total (347) appears for the four-week period ended March 27, 1926, and the highest (676) for the four-week period ended November 6, 1926. The numbers in the 26 periods of four weeks were as follows:

Apr. [illegible]	[illegible]	Apr. [illegible]	[illegible]
Mar. 26	144	Mar. 27	347
Feb. 26	443	Feb. 27	375
Jan. 29	473	Jan. 30	431
Jan. 1	521	Jan. 2	551
1926:		1925:	
Dec. 4	634	Dec. 5	625
Nov. 6	676	Nov. 7	612
Oct. 9	656	Oct. 10	529
Sept. 11	560	Sept. 12	521
Aug. 14	197	Aug. 15	467
July 17	484	July 18	493
June 19	549	June 20	493
May 22	486	May 23	423

For the 52-week periods ended April 23, 1927, and April 24, 1926, the totals for the 78 cities were, respectively, 6,925 and 6,289, indicating a recent rate of 21.8 per 100,000 population as against an earlier rate of 20.1, or an increase of 8 per cent in the rate in a single year.

Eight cities reported no automobile fatalities for the last four weeks, while 11 cities reported no automobile fatalities for the corresponding period of 1926.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for March and First Quarter of 1927

The accompanying tables are taken from the Statistical Bulletin for April, 1927, published by the Metropolitan Life Insurance Co., and present the mortality experience of the industrial insurance department of the company for March, 1927, and for the first quarters of 1927, 1926, and 1925. The rates for 1927 are based on the records of approximately 18,000,000 insured persons of the industrial populations of the United States and Canada.

The death rate in this group of persons for March, 1927 (10.3 per 1,000), not only continued the improvement over last year shown in January and February, but, it is stated, is the lowest rate for March ever recorded by the company. As compared with March a year ago, measles and whooping cough show a very marked improvement; mortality from influenza dropped 58 per cent, and that from pneumonia 39 per cent; and all three of the principal "degenerative diseases"—cerebral hemorrhage, organic heart disease, and chronic nephritis—show large declines in mortality. Slight decreases were recorded for tuberculosis, cancer, diabetes, and diarrheal conditions.

The mortality from diphtheria was considerably higher in March of this year than it was for the same month last year, as was the case in both January and February; but the Bulletin states that the last two weeks in March and the first week in April recorded a decline in the death rate for this cause, and the excess cumulative mortality over last year is not now as high as it was earlier in 1927.

Death rates (annual basis) for principal causes per 100,000 lives exposed, March and February, 1927, and March, 1926

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed [1]			
	March, 1927	February, 1927	March, 1926	Year 1926 [2]
Total, all causes	1,028.5	956.6	1,228.2	942.7
Typhoid fever	3.0	3.1	2.4	4.2
Measles	7.9	5.5	21.8	10.2
Scarlet fever	4.9	5.2	4.8	3.4
Whooping cough	8.3	5.3	13.8	9.6
Diphtheria	11.3	11.3	9.4	9.7
Influenza	32.3	30.0	77.2	31.0
Tuberculosis (all forms)	114.1	99.7	116.9	98.7
Tuberculosis of respiratory system	100.3	88.5	101.9	86.5
Cancer	77.2	75.5	78.2	73.5
Diabetes mellitus	19.2	18.9	21.9	16.7
Cerebral hemorrhage	58.9	57.1	69.4	55.5
Organic diseases of heart	149.4	136.7	176.8	133.9
Pneumonia (all forms)	119.9	118.0	196.8	97.9
Other respiratory diseases	19.9	18.6	19.1	13.1
Diarrhea and enteritis	16.3	14.3	17.2	29.8
Bright's disease (chronic nephritis)	79.6	80.2	93.1	73.3
Puerperal state	17.2	14.9	17.7	15.3
Suicides	9.9	7.8	7.1	7.6
Homicides	8.1	7.2	6.6	7.0
Other external causes (excluding suicides and homicides)	55.9	54.0	56.5	62.2
Traumatism by automobiles	12.3	11.5	9.7	16.7
All other causes	215.0	193.5	221.5	190.4

[1] All figures include infants insured under 1 year of age.
[2] Based on provisional estimate of lives exposed to risk in 1926.

FIRST QUARTER OF 1927

On the basis of mortality experience, the health record of this large group of persons (comprising more than one-seventh of the total population and more than one-fourth of the urban population of the two countries) is stated to have been better during the first quarter of 1927 than during the corresponding quarter of any preceding year. The death rate for the quarter was 9.7 per 1,000, a figure equaled only in 1921, when infant lives under 1 year of age were not insured by the company. If the comparative health conditions in these industrial populations are representative of comparative conditions in the general population, it is predicted that later reports will show an exceptionally favorable health record in both the United States and Canada during the first quarter of 1927.

The following table shows the items that have been chiefly instrumental in producing this pleasing record:

Death rates (annual basis) for principal causes per 100,000 persons exposed for first quarters of 1927, 1926, and 1925, by white and colored policyholders

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rates per 100,000 persons exposed					
	White			Colored		
	January-March, 1927	January-March, 1926	January-March, 1925	January-March, 1927	January-March, 1926	January-March, 1925
All causes of death	885.9	987.4	928.6	1,549.8	1,675.0	1,626.1
Typhoid fever	2.3	2.7	2.9	6.5	5.4	5.6
Measles	6.5	16.6	3.0	2.5	9.7	1.3
Scarlet fever	4.8	5.1	6.0	1.6	1.3	.8
Whooping cough	6.7	9.7	6.3	9.9	10.5	10.9
Diphtheria	12.6	10.9	14.4	8.1	5.6	5.8
Influenza	26.4	43.5	33.1	60.5	92.1	76.5
Meningococcus meningitis	1.0	.7	.9	1.3	.4	1.0
Tuberculosis (all forms)	80.8	85.9	90.5	217.3	231.0	230.8
Tuberculosis of respiratory system	70.9	76.2	79.7	191.8	202.4	206.2
Tuberculosis of the meninges, etc	4.8	4.2	5.0	6.3	9.2	7.3
Other forms of tuberculosis	5.2	5.5	5.7	19.2	19.5	17.3
Cancer	76.3	74.1	72.5	66.8	67.6	70.6
Diabetes mellitus	18.1	19.4	18.2	20.5	15.7	19.2
Alcoholism	3.0	3.8	3.0	4.3	5.2	4.0
Cerebral hemorrhage; apoplexy	52.7	58.7	56.5	104.3	108.6	98.8
Organic diseases of the heart	136.9	149.1	135.9	206.3	217.0	235.4
Total respiratory diseases	117.4	154.7	136.5	238.1	309.7	265.5
Bronchitis	5.3	6.7	7.1	10.6	9.9	10.9
Broncho-pneumonia	46.2	61.3	52.0	76.5	109.2	79.8
Pneumonia (lobar and undefined)	57.7	78.2	68.3	140.1	176.6	157.1
Other diseases of respiratory system	8.2	8.5	9.1	11.0	3.0	17.8
Diarrhea and enteritis	15.1	16.9	17.6	15.6	17.8	23.6
Under 2 years	12.0	14.5	14.7	10.2	12.9	16.5
2 years and over	3.1	2.4	2.9	5.4	4.9	7.1
Acute nephritis	3.9	4.9	5.1	14.9	15.7	16.1
Chronic nephritis (Bright's disease)	68.8	76.0	70.7	137.9	139.1	131.4
Total puerperal state	14.4	15.5	17.2	24.4	24.2	26.5
Puerperal septicemia	5.6	6.1	6.7	12.0	10.3	11.9
Puerperal albuminuria and convulsions	2.9	3.6	3.5	5.2	6.7	4.4
Other diseases of puerperal state	5.9	5.8	7.0	7.2	7.1	10.2
Total external causes	66.7	64.2	66.7	117.4	112.9	103.6
Suicides	8.5	7.4	7.5	7.7	4.3	4.2
Homicides	3.0	2.8	3.3	36.5	32.2	31.8
Accidental and unspecified violence	55.2	54.1	55.8	73.3	76.4	67.7
Accidental drowning	2.6	2.6	1.6	3.2	1.9	2.1
Automobile accidents	12.8	12.2	11.9	14.4	11.0	9.0
All other and ill-defined causes of death	171.5	175.0	171.9	291.5	285.3	298.5

PUBLIC HEALTH ENGINEERING ABSTRACTS

Camps. Report of Bureau of Sanitary Engineering, Maryland State Department of Health, 1926, 19 pages. (Abstract by I. W. Mendelsohn.)

The State board of health issued an order during the year requiring a permit for each summer camp. An engineer was assigned to work with deputy State health officers in investigating sanitary conditions of camps. There were 109 inspections during the year. As a result of this work the following practice is recommended: (1) The insertion of a notice in the daily papers in February and March to the effect that any camp, summer hotel, summer boarding house, picnic grounds, etc., may not operate during 1927 without a permit; (2) inspections and sampling during spring and summer; (3) establishment of reasonable limit of time for improvements; (4) follow-up inspections, with refusal or granting of permit as conditions would warrant; (5) placarding the State road camps, stating that the place has been investigated by the State department of health and approved. If studies showed them unsatisfactory, the proper authorities should be requested to improve them before receiving the health department's approval.

Summer Camps in New Jersey. C. K. Blanchard. *Public Health News*, New Jersey State Department of Health, vol. 12, No. 5, April, 1927, pp. 108–113. (Abstract by E. C. Sullivan.)

This article, which is a paper read before the New Jersey Sanitary Association, gives a simple classification of summer camps, exclusive of labor and construction camps, as (1) summer camps of single families or small groups of persons; (2) camps maintained by organizations for boys, girls, or adults; (3) camps maintained for the use of automobile tourists.

The writer believes that camps in the first class are a more serious menace to public health than those of other groups, but that their sanitation is clearly a local problem. Camps of the third class are not so important in New Jersey as in many States, owing to the short period of time necessary to cross the State. This relatively short travel period reduces the demand for overnight camps.

Camps of the second class are most important. While the water supplies are usually carefully chosen and protected, a good food supply is provided, and the use of chemical toilets or safe, fly-tight privies is increasing, nevertheless, there are a number of improvements necessary in the larger of these camps before their equipment or protection can be regarded as entirely sanitary. The writer discusses various stages of the problem and suggests as a matter of discussion the plan for their control, which basically would require the licensing of such camps either by the State department of health or by the local city or town. The issuance of such licenses would be dependent upon compliance with the requirements which would be specified for their adequate sanitation. To put such a system of licensing into effect would require additional provisions by law and in the State sanitary code covering the operation and maintenance of such camps.

The Rodents of Lagos and Their Ectoparasites with Reference to Plague. Andrew Connal, M. D. *Annals of Tropical Medicine and Parasitology*, vol. 20, No. 4, December 17, 1926, pp. 341–352. (Abstract by R. E. Tarbett.)

This article has to do with the rat campaign and a study of fleas made following an epidemic of bubonic plague in Lagos, Southern Nigeria, British West Africa, and vicinity, in 1924.

Various methods of trapping and poisoning were employed, but the greater number of rodents were collected in traps of the break-back type, there being very little success with the use of cage traps. The killing of the rodents in the traps undoubtedly affected the flea collection to a considerable extent. The rodents caught were *Rattus rattus*, *Rattus norvegicus*, *Mus musculus*, the shrew, the striped field rat, and the pouched rat. All rodents were examined, a total of

167,194 being caught. Plague was found in the first four named. Of the rodents, the *musculus* predominated, with the *Rattus rattus* second. Very few of the striped field rat or pouched rat were found. The chart shows the relationship between the percentage of plague rodents and the number of plague cases. The tables are given showing the monthly catch, type of rodent, and the number of rodents infected for each of the five places where trapping was carried on. One thousand five hundred and twenty-nine fleas were collected from the rats and examined. Five species were found; *X. cheopis* predominated. Tables show the number and species of the fleas collected.

Multiplication of B. Coli in Stored Shellfish. John E. Bacon, Chief, Bureau of Chemistry. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February–March, 1927, pp. 87, 88. (Abstract by E. C. Sullivan.)

This article is concerned with an experiment conducted by the New Jersey State Department of Health with respect to the tendency of bacteria of the *B. coli* group to multiply in shell stock after removal from the natural waters, provided that the shellfish are kept alive and in a thriving condition. The report of the Committee on Sanitary Control of the Shellfish Industry of the United States has stated that from the evidence available the bacteria of the *B. coli* group do not tend to multiply in shell stock after removal from the water so long as the shellfish are kept alive and in a thriving condition, whereas in the instance of an experiment by Calista Eliot, entitled "Observations on the colon-aerogenes group from the oysters," published in the *American Journal of Hygiene*, November, 1926, it is reported that the *B. coli* group in stored shellfish increased from 4 to 500,000 in 14 days, no statement being made as to the age of the oysters at the beginning of the experiment. Four hundred oysters were accordingly collected by the New Jersey State Department of Health from a New Jersey shellfish area and kept at a temperature of 21° to 24° C. for periods of 1 to 8 days, four samples from the oysters being examined each day by the regular standard methods.

The result of this test by the New Jersey State Health Department showed "an appreciable increase in scores and total count of stored oysters and generally confirmed the findings of Eliot. As the purpose of the bacteriological scoring of market oysters is to obtain an idea of the probable degree of pollution of the waters in which the oysters are grown, it is apparent that such examinations, unless carried out upon fresh stock, are misleading."

It is the intention of the New Jersey State Department of Health to incorporate in the rules and regulations governing the handling of shellfish in that State a section requiring all retail dealers of shellfish to stamp upon all shipping tags the date of receipt of shipments.

Importance of Heat in Preparing Foods. W. W. Scofield, Chief, Bureau of Food and Drugs. *Public Health News*, New Jersey State Department of Health vol. 12, Nos. 3, 4, February-March, 1927, pp. 89, 90. (Abstract by E. C. Sullivan.)

The author states that it is an interesting fact that almost without exception in instances where outbreaks of typhoid fever, scarlet fever, diphtheria, septic sore throat, diarrhea, and enteritis have been traced to foods, they have been transmitted by foods which had not been properly heated. Although very considerable advances have been made in the manner in which foodstuffs are prepared for sale and distribution, outbreaks of communicable disease transmitted through foodstuffs continue to occur. Moreover, the application of the proper degrees of heat to these foods at the proper time will prevent the transmission of disease by them.

Mention is made of the efficacy of Pasteurization of milk and other dairy products in destroying disease-producing organisms, and in preventing the transmission of disease by these foods unless the products are contaminated after Pasteurization. The author makes mention of the outbreaks of communicable disease which have been caused at public gatherings through the serving of large numbers of people with cold foods prepared a considerable time in advance of the time of serving. Consequently, there is always the danger of mass infection with disease germs of foods thus prepared if any of the handlers are carriers or are ill with disease. Food for public gatherings is customarily cooked in advance and the cooked foods are handled by individuals. Generally, a moist mass of food is set aside until the time of serving; and if the refrigerator or other place of storage is not maintained at a low temperature, the bacteria, if infected, will develop in great numbers.

The danger of eating spoiled canned goods is pointed out, and it is recommended that people should inspect all canned foods to see that the exterior appearance of the cans is normal and that the ends of the cans do not bulge. Mention is made of the transmission of disease by raw or uncooked meat and shellfish.

Pennsylvania Extends Milk Control in Rural Communities. Charles H. Miner. *The Nation's Health*, vol. 8, No. 3, March, 1926, pp. 156–158. (Abstract by H. N. Old.)

The author of this paper describes the problem of Pennsylvania's rural population of over 3,000,000 persons, the majority of whom were practically without any sort of milk sanitation measures prior to 1923. On April 4 of that year the advisory board of the department of health approved a regulation which forms the basis for milk control throughout the State.

The progress being made in the matter of testing of dairy herds for tuberculosis is described and the fact brought out that approximately $2,500,000 (including $400,000 from the Federal Department of Agriculture) were provided for indemnity purposes covering the two-year period beginning June 1, 1925, more than six times the amount provided by any previous legislature.

While the State department of health has endeavored to avoid any centralization of milk control by the encouragement of local supervision wherever the facilities may be available, the department has materially assisted the local communities in many ways. Adoption of uniform milk ordinances, usually providing for three grades of milk—certified, grade "A" raw, and Pasteurized—has been urged and accomplished in many instances. This has required much missionary work by which the consumers have been aroused to demand protection and the producers and distributers convinced that their own best interests are served by such supervision.

A six weeks' course in milk sanitation is given at one of the universities annually for instruction of health officers and others who desire to qualify for the position of local milk inspectors. A laboratory housed in a motor truck goes about the State visiting milk-treatment plants in cooperation with the local inspector. This laboratory is equipped for the making of Babcock and lactometer determinations, methylene blue reduction tests, sediment and temperature observations, and direct microscopic counts. It is said that the small milk plant operator and the local board of health inspectors have found this traveling laboratory most useful. Requests for this service have already indicated the need for an additional unit.

The Association of Pennsylvania Dairy and Milk Inspectors has been formed, with two-day sessions held annually to discuss the various problems encountered in the field.

It is stated that many distributors purchase apparatus entirely unsuited to their needs. The trained inspectors are called upon for recommendations; and their inspections do not consist merely of recording conditions, but frequently necessitate several days of actual operation of the plant by the inspector in order that he may leave it operating at maximum efficiency and that the operator may be convinced that real and practical assistance has been rendered. During the past 18 months, 250 Pasteurizing plants have been examined by the State.

The milk-control program as carried out was planned and adopted only after exhaustive survey of the entire State was conducted covering a period of four years. The success of the program and the progress being made is said to be with a realization that "the establishment of milk control in a city or State means hard work over a long period. It is a continuous educational program."

Conservation of the Waters of the State by the State Department of Health. N. P. Croft, Chief, Bureau of Engineering. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February–March, 1927, pp. 74–86. (Abstract by E. C. Sullivan.)

This paper, delivered at the short course for sewage-plant operators. Rutgers University, New Brunswick, N. J., on January 27, 1927, outlines the diversity of opinion in regard to the conservation of waters of New Jersey and states that a central authority has been developed in the State department of health for determining, with equity to all concerned, the amount of work that shall be done by the receiving waters and by the devices for the treatment of domestic sewage and of industrial wastes.

In the paper are traced the agencies in New Jersey to which since 1887 the matter of the control of sewage disposal has been delegated, being eventually lodged in the State department of health. Mention is made that the State department of health has no jurisdiction over the Passaic Valley sewerage district, but that the abatement or nonabatement of pollution by the Passaic Valley sewerage commission is one of the controlling factors in the policy of the State department of health for the conservation of the upper Passaic River. The author points out the effect of sewage pollution on fish life and invites attention to the cost involved in trade waste disposal. He calls attention to the fact that stream pollution is not confined to local boundaries and that the municipalities are always loath to spend public funds for the benefit of neighboring municipalities.

It is stated that the New Jersey State Department of Health has a well-defined policy with respect to sewage pollution and that it is progressively moving for the securing and holding of clean streams in spite of the retardation occasioned by the nonaction of legal authorities.

A résumé is given of the New Jersey laws which give the State health department jurisdiction relating to water supplies and to the discharge of polluting material into streams. By virtue of authority contained therein, there has been maintained a general supervision and inspection of sewage-treatment plants installed throughout the State and there are rules and regulations in effect for the submission of plans and other data relating to sewage products.

Since 1918 the State laws have required the licensing of sewage plant operators. The operators must understand the principles of sewage treatment, and under the latest rules and regulations adopted in 1926 the classification of plants is divided into two main groups: Primary treatment and primary-secondary treatment. Each of these groups is subdivided into three classes, or divisions, depending upon the location of the plant to be operated, the size of installation, and the usage of the receiving waters.

Separate Digestion Tanks and Sand Filters for Wheaton Sewage. Anon. *Engineering News-Record*, vol. 98, No. 10, March 10, 1927, p. 409. (Abstract by Arthur P. Miller.)

At Wheaton, Ill., sewage effluent from the treatment plant flows through fine suburban estates, and therefore a high degree of treatment had to be provided. This is effected by supplementing tank treatment with intermittent sand filtration. The plant is designed to care for the estimated population of 1935–1940. For operation on the separate sludge digestion system, there are two settling tanks and two digestion tanks.

The settling tanks are square, with nearly flat bottoms and conical sumps, and solids are collected by Dorr clarifiers. Sludge removal may be continuous or intermittent. Surplus water and water of liquefaction can be removed from the digestion tanks and returned to the settling tanks, and liquid between the scum and the sludge may be piped back to the pump suction and passed through both tanks again.

Chemical Treatment of Trade Waste. Part I: Dye Waste in General. Foster D. Snell, *American Dyestuff Reporter*, vol. 16, No. 1, January 24, 1927, pp. 54–56. (Abstract by Emery J. Theriault.)

The literature pertaining to the disposal of dye wastes is briefly reviewed. "Problems relating to purification of dye-works waste may be sharply divided into those in which all of the waste must be treated and those in which a limited amount of waste may be discharged through community sewers. * * * The latter case is much simpler and cheaper, because the worst of the discharge may be 'scalped' and the clearest part treated by chemical means."

In the order of their importance, the four practical methods of purifying dye wastes are coagulation, oxidation or reduction, decolorization by carbon, and evaporation. "A waste would be treated by the latter two methods only under the most extreme conditions." Copperas is the cheapest coagulant available in the average case.

"Barbour (1909: *Eng. News*, 62–99) has proposed a standard of not over 300 p. p. m. of total solids, 200 p. p. m. fat, no abnormal acidity or alkalinity, and removal of pronounced antiseptic properties. In many cases this standard of total solids works an undue hardship. The others are general practice. * * * While there is nothing in the color of waste necessarily harmful it is usually the principal point considered by nontechnical people. * * * The purity of the water may be lessened by commercial use provided no actual damage is shown.

"In general, determination of total solids and loss of ignition gives a rough estimate of the degree of contamination. * * * A quicker and simpler method for routine testing * * * is oxygen consumed by the permanganate method. The biochemical oxygen demand is more indicative of the real contamination by organic matter, but is so difficult of manipulation and uncertain as to results as to fail to justify the expenditure of time. * * * A suitable method of measuring colors before and after treatment is by use of a Lovibond tintometer, using a cell thickness of 50.8 mm. (2 inches)."

Sewage Disposal and Public Health.—Clyde Potts, president, New Jersey State Board of Health. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February–March, 1927, pp. 68–73. (Abstract by E. C. Sullivan.)

This paper, delivered at the short course for sewage-plant operators, Rutgers University, New Brunswick, N. J., January 17, 1927, traces the history of sewage disposal in relation to public health and states that "its intimate connection with the public health has come up hand in hand with the discoveries in the sciences of bacteriology and water chemistry." Mention is made of the early

attempts in the treatment of sewage, mainly to avoid public nuisances or to utilize the fertilizing products in sewage, and of the use of sewage for irrigation.

The principles and theories of Mouras with respect to his "automatic vault cleaner" in Paris in the late seventies are cited, and likewise the "septic tank" introduced by Cameron about 1900.

While the ultimate solution of the sewage-disposal problem has not yet been achieved, the underlying principle that all methods of sewage disposal are founded on bacterial decomposition has become well established. There is a well-defined connection between the subjects of sewage disposal and public health.

The author makes particular mention of the wide use of chlorine as a disinfecting agent for both sewage and water in New Jersey and states that it has been one of the greatest factors in the reduction of the typhoid-fever rate in that State. The effluent of all sewage-treatment plants discharged into potable streams is chlorinated.

The author makes mention of sewage-treatment processes in use in New Jersey and makes mention of the work of the State department of health. Some 365 plants have been established in that State under the supervision of the engineering bureau for the partial or complete removal of human wastes.

Taste and Odor in Water. Ross A. Thurma. *Water Works*, vol. 66, No. 3, March, 1927, p. 124. (Abstract by R. E. Tarbett.)

This article covers experiences in removing odor from the water supply of the city of St. Paul, Minn., by aeration. Tastes and odors due in part to algal growths and decaying organic matter were present at all times, increasing when the oxygen content of the water became low. Odors noted were musty, swampy, vegetable, earthy, etc.

Algal growth in the lakes has been kept as low as possible by dosing regularly with copper sulphate. The odor in the raw water was reduced in passing through the filtration plant, but not sufficiently to stop complaints from the users. Aeration was carried on by passing the water through a mixing chamber with an air-diffusing pipe laid in the bottom. Air under 5 to 6 pounds pressure was applied at a rate of 6,000 cubic feet per 1,000,000 gallons. Air was forced through the water at such a rate that ventilation of the water was secured. The reduction in odors amounted to 62 per cent, of which 29 per cent was attributable to the filtration plant. Complaints were eliminated. Whether the removal of odor was due to oxidation or ventilation or both combined was not known. The cost of aeration was 50 cents per 1,000,000 gallons water aerated.

Does Cement-Lined Pipe Cause Formation of Scum? Burton G. Philbrick. *Water Works Engineering*, vol. 80, No. 6, March 16, 1927, p. 364. (Abstract by William L. Havens.)

In the operation of a bottling plant at Quincy, Mass., considerable trouble was experienced on account of the development of a gray, greasy scum which appeared only on the surface of the water. The supply was taken from the city service, which is served from the metropolitan system. It was learned that new cement-lined distribution pipes had recently been installed; and on account of the similarity in appearance between this scum and that usually found on the water pans in which cement briquets are aged, suspicion was directed toward this cause. It was found that there were no data available on the subject, but personal conversation with laboratory men and engineers revealed that this formation of scum is not uncommon. It has frequently been noted in Rhode Island, where the farmers have sunk cement pipes in their wells and have appealed to the State laboratory on noticing the dirty surface scum. Mr. Weston also gives figures obtained from analyses of a Farmton service tap water which comes through 475 feet of cement-lined pipe, showing an increase in hardness

from 10 to 80 parts per million. In the case of the Quincy supply, the water cleared up by October, and since that time no more scum has been noticed.

Laboratory Work on Malaria in England. Anon. *Journal Royal Army Medical Corps*, vol. 48, No. 2, February, 1927, pp. 122–130. (A comment on the Report on the First Results of Laboratory Work on Malaria in England, by Lieut. Col. S. P. James. Publications of the League of Nations, III, Health, March, 1926.) (Abstract by M. A. Barber.)

The arrangement officially authorized in England for the conveyance of malaria in the treatment of progressive paralysis is by the bites of infected mosquitoes rather than by the use of infected blood. James describes the technique of infecting mosquitoes and of keeping them in condition for transmitting the disease to man. *Anopheles maculipennis* is the mosquito species used, and these are infected by exposing them to a person harboring gametocytes of a pure strain of benign tertian malaria. After mosquitoes are infected and the sporozoites developed, they are removed to cold storage, where they may be kept alive for weeks. When needed for infecting a patient, they are gradually warmed up and allowed to bite. They may be transported many miles and used in a distant hospital.

Certain factors limit the proportion of mosquitoes that can acquire infectivity in such experiments. Patients who are good "infectors" are rare. The mortality of the mosquitoes is great, even under favorable conditions in the laboratory. The author believes that even greater hazards are encountered by the malaria parasite in nature. Hardly 5 per cent of the potential malaria-carrying mosquitoes which emerge from the larval stage in nature will ever meet the conditions necessary for them to play the rôle of vectors in nature. Malaria will not spread unless a large number of special conditions are fulfilled, among them those which will secure the necessary longevity of the mosquito. "Colonel James' experiments strengthen the opinion that malaria is essentially a household disease, and the inference is that malaria should be dealt with in the houses of the people rather than in the environment." If the conclusions of Colonel James are valid, "it will be realized that measures directed against the breeding places of mosquitoes as a whole have been to a great extent wasted, and that such measures must now be reconsidered in the light of new knowledge, which undoubtedly indicates that the successful control of malaria depends more on the exact knowledge of the life history of a few individual mosquitoes that succeed in becoming transmitters of malaria than on the general knowledge that the disease is spread by mosquitoes of a particular kind."

It will be remembered that the experiments of Colonel James were done with *A. maculipennis* in England and do not warrant the assumption that all species under all conditions will behave in a similar manner.

The original paper of Colonel James should be consulted. There is much of interest which can not be treated in a short review.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for November, 1926

Reports for the month of November, 1926, were received from 31 institutions for the care of the feeble-minded.

The following tables give a summary and an analysis of the reports:

Movement of patient population in 31 institutions for the feeble-minded, November, 1926

	Male	Female	Total
Number of institutions included:			
Public			30
Private			1
Total			31
Patients on books November 1, 1926:			
In institutions	13, 521	13, 333	26, 854
On temporary leave	2, 078	1, 547	3, 625
Total	15, 599	14, 880	30, 479
Patients admitted during November:			
First admissions	153	130	283
Readmissions	10	12	22
Admitted by transfer	44	1	45
Not accounted for	0	1	1
Total received during November	207	144	351
Total on books during month	15, 806	15, 024	30, 830
Discharged or placed on indefinite parole during November	61	55	116
Transferred	44	2	46
Died during November	38	29	67
Not accounted for	8	2	10
Total discharged, transferred, and died	151	88	239
Patients on books November 30, 1926:			
In institutions	13, 599	13, 393	26, 992
On temporary leave	2, 056	1, 543	3, 599
Total	15, 655	14, 936	30, 591

Analysis of movement of patient population of 31 institutions for the feeble-minded, November, 1926

	Male	Female	Total
Per cent change in number of patients during November:			
Total (increase)	0. 36	0. 38	0. 37
In institutions (increase)	. 58	. 45	. 51
On temporary leave (decrease)	1. 06	. 26	. 72
Per cent of patients absent on temporary leave:			
Nov. 1	13. 32	10. 40	11. 89
Nov. 30	13. 13	10. 33	11. 76
Per cent of total admissions (excluding transfers) which were:			
First admissions	93. 86	91. 55	92. 79
Readmissions	6. 14	8. 45	7. 21
Per cent of total patients discharged during November (based on average number for month)	. 39	. 37	. 38
Males per 1,000 females			1, 048
Deaths per 1,000 patients under treatment (annual basis)	29. 25	23. 48	26. 44

DEATHS DURING WEEK ENDED MAY 14, 1927

Summary of information received by telegraph from industrial insurance companies for week ended May 14, 1927, and corresponding week of 1926. (From the Weekly Health Index, May 18, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 14, 1927	Corresponding week, 1926
Policies in force	65, 765, 714	64, 410, 614
Number of death claims	12, 343	13, 629
Death claims per 1,000 policies in force, annual rate	9. 8	11. 0

Deaths from all causes in certain large cities of the United States during the week ended May 14, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 18, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 14, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 14, 1927 [2]
	Total deaths	Death rate [1]		Week ended May 14, 1927	Corresponding week 1926	
Total (67 cities)	7, 286	12. 9	[3] 13. 2	778	[3] 917	[4] 64
Akron	45			5	8	54
Albany [5]	39	16. 9	19. 7	1	5	21
Atlanta	77			10	12	
White	41			5	6	
Colored	36	(6)		5	6	
Baltimore [5]	229	14. 6	15. 4	21	35	65
White	169		13. 4	13	25	50
Colored	60	(6)	27. 2	8	10	124
Birmingham	56	13. 6	16. 1	5	10	
White	21		12. 2	3	4	
Colored	35	(6)	22. 0	2	6	
Boston	259	17. 0	16. 2	33	24	92
Bridgeport	35			1	5	19
Buffalo	140	13. 3	14. 4	21	27	88
Cambridge	29	12. 2	11. 1	3	0	53
Camden	36	14. 1	13. 9	3	3	52
Canton	33	15. 2	11. 9	3	6	71
Chicago [5]	659	11. 1	12. 7	72	77	62
Cincinnati	140	17. 7	19. 0	13	17	81
Cleveland	176	9. 3	11. 8	24	25	64
Columbus	60	10. 8	14. 1	4	10	37
Dallas	41	10. 2	8. 7	5	5	
White	33		8. 3	5	4	
Colored	8	(6)	11. 6	0	1	
Dayton	48	13. 9	15. 9	3	11	49
Denver	81	14. 6	15. 7	4	12	
Des Moines	35	12. 2	10. 4	2	0	33
Detroit	307	12. 0	13. 4	46	66	73
Duluth	26	11. 8	14. 3	5	1	108
El Paso	30	13. 7	13. 4	12	11	
Erie	28			4	6	78
Fall River [5]	26	10. 2	11. 9	3	3	53
Flint	27	9. 8	11. 1	1	10	16
Fort Worth	50	15. 9	11. 8	9	4	
White	42		11. 2	8	3	
Colored	8	(6)	16. 5	1	1	
Grand Rapids	33	10. 8	13. 0	2	8	29
Houston	41			4	3	
White	24			1	2	
Colored	17	(6)		3	1	
Indianapolis	99	13. 8	15. 9	8	11	63
White	86		14. 9	4	6	36
Colored	13	(6)	23. 7	4	5	244
Jersey City	84	13. 6	8. 4	14	5	105
Kansas City, Kans	28	12. 5	14. 3	1	8	19
White	18		14. 0	0	5	0
Colored	10	(6)	15. 3	1	3	152

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 66 cities.
[4] Data for 62 cities.
[5] Deaths for week ended Friday, May 13, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended May 14, 1927, infant mortality, annual death rate, and comparision with corresponding week of 1926—Continued

City	Week ended May 14, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 14, 1927
	Total deaths	Death rate		Week ended May 14, 1927	Corresponding week 1926	
Kansas City, Mo	105	14.3	12.4	20	10	
Knoxville	26	13.3		0		
White	22			0		
Colored	4	(6)		0		
Los Angeles	245			25	15	72
Louisville	75	12.2	14.4	1	10	9
White	50		12.6	1	7	10
Colored	25	(6)	24.4	0	3	0
Lowell	23	10.9	15.6	5	3	96
Lynn	36	17.9	10.0	2	3	53
Memphis	69	20.1	17.4	6	5	
White	27		12.3	3	3	
Colored	42	(6)	26.5	3	2	
Milwaukee	117	11.6	11.8	17	15	79
Minneapolis	79	9.3	13.5	9	15	51
Nashville [5]	47	17.8	19.0	5	4	
White	27		13.8	2	2	
Colored	20	(6)	32.1	3	2	
New Bedford	20	8.7	11.8	4	7	69
New Haven	39	11.0	2.0	5	1	70
New Orleans	169	20.8	16.8	23	16	
White	91		12.8	7	10	
Colored	78	(6)	28.2	16	6	
New York	1,505	13.1	12.7	152	181	63
Bronx Borough	188	10.6	9.6	13	14	41
Brooklyn Borough	505	11.6	11.8	56	77	58
Manhattan Borough	647	18.6	16.4	67	72	79
Queens Borough	125	8.1	8.6	12	14	51
Richmond Borough	40	14.2	18.6	4	4	74
Newark, N. J	86	9.6	13.5	11	16	54
Oakland	58	11.3	8.6	3	2	35
Oklahoma City	32			2	1	
Omaha	52	12.4	14.7	2	4	22
Paterson	28	10.1	12.8	2	5	35
Philadelphia	506	13.0	12.8	53	52	71
Pittsburgh	181	14.7	13.3	20	28	70
Portland, Oreg	67			6	1	63
Providence	49	9.1	11.2	10	5	85
Richmond	59	16.0	13.2	10	4	132
White	39		12.1	4	2	81
Colored	20	(6)	16.1	6	2	228
Rochester	88	14.2	14.3	13	11	109
St. Louis	207	12.9	13.1	7	19	
St. Paul	56	11.7	10.3	5	2	45
Salt Lake City [5]	35	13.4	14.5	4	5	61
San Antonio	63	15.6	15.0	13	12	
San Diego	40	18.1	17.5	4	4	85
San Francisco	143	12.9	10.9	11	6	69
Schenectady	21	11.8	9.0	3	1	90
Seattle	64			4	2	42
Somerville	14	7.2	8.0	1	4	36
Spokane	32	15.3	10.0	1	1	25
Springfield, Mass	41	14.5	18.3	7	8	108
Syracuse	35	9.3	11.3	3	5	39
Tacoma	23	11.2	14.3	2	2	47
Toledo	76	13.0	14.1	7	7	67
Trenton	48	18.3	13.6	6	4	104
Washington, D. C	119	11.5	14.9	5	23	29
White	70		12.3	3	15	25
Colored	49	(6)	22.6	2	8	37
Waterbury	20			0	6	0
Wilmington, Del	30	12.4	11.4	2	3	50
Worcester	58	15.5	14.3	2	7	24
Yonkers	22	9.6	11.2	2	2	45
Youngstown	35	10.8	13.3	2	11	28

[5] Deaths for week ended Friday, May 14, 1927.

[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended May 21, 1927

DIPHTHERIA	Cases
Arizona	2
Arkansas	5
Colorado	4
Connecticut	22
Delaware	2
Florida	12
Idaho	2
Illinois	134
Kansas	6
Louisiana	11
Maine	6
Maryland [1]	43
Massachusetts	85
Michigan	82
Montana	3
New Jersey	140
New Mexico	2
New York [2]	92
North Carolina	10
Oregon	9
Pennsylvania	167
Texas	15
Utah [1]	8
Washington	14
West Virginia	16
Wisconsin	31
INFLUENZA	
Arkansas	54
Colorado	1
Connecticut	2
Florida	2
Illinois	73
Kansas	5
Louisiana	6
Maine	1

[1] Week ended Friday.

INFLUENZA—continued	Cases
Maryland [1]	10
Massachusetts	9
Michigan	4
New Jersey	4
Oregon	13
South Dakota	1
Texas	45
West Virginia	30
Wisconsin	26
MEASLES	
Arizona	42
Arkansas	78
Colorado	150
Connecticut	44
Delaware	21
Florida	106
Idaho	36
Illinois	1,060
Kansas	960
Louisiana	45
Maine	106
Maryland [1]	21
Massachusetts	475
Michigan	263
Montana	17
New Jersey	111
New Mexico	124
New York [2]	807
North Carolina	1,613
Oregon	308
Pennsylvania	663
South Dakota	65
Texas	198
Utah [1]	20
Vermont	153

[2] Exclusive of New York City.

MEASLES—continued	Cases
Washington	488
West Virginia	157
Wisconsin	879

MENINGOCOCCUS MENINGITIS

Connecticut	1
Florida	1
Idaho	1
Illinois	5
Kansas	1
Massachusetts	1
Michigan	3
New Jersey	1
New York [2]	2
Oregon	1
Pennsylvania	3
Washington	3

POLIOMYELITIS

Arizona	1
Connecticut	1
Illinois	3
Kansas	1
Louisiana	2
Massachusetts	2
New Jersey	2
New Mexico	1
New York [2]	3

SCARLET FEVER

Arizona	8
Arkansas	2
Colorado	97
Connecticut	99
Delaware	10
Florida	5
Idaho	13
Illinois	258
Kansas	66
Louisiana	8
Maine	48
Maryland [1]	75
Massachusetts	439
Michigan	247
Montana	31
New Jersey	262
New Mexico	9
New York [2]	276
North Carolina	18

SCARLET FEVER—continued	Cases
Oregon	46
Pennsylvania	532
South Dakota	17
Texas	8
Utah [1]	34
Vermont	3
Washington	35
West Virginia	50
Wisconsin	152

SMALLPOX

Arkansas	2
Colorado	1
Florida	64
Idaho	7
Illinois	33
Kansas	11
Louisiana	4
Michigan	43
Montana	3
New York [2]	17
North Carolina	44
Oregon	20
Texas	47
Utah [1]	4
Washington	42
West Virginia	28
Wisconsin	25

TYPHOID FEVER

Arizona	4
Arkansas	13
Colorado	1
Florida	17
Idaho	2
Illinois	16
Kansas	6
Louisiana	18
Maryland [1]	7
Massachusetts	8
Michigan	9
Montana	3
New York [2]	14
North Carolina	9
Oregon	6
Pennsylvania	9
Texas	6
Washington	5
West Virginia	11
Wisconsin	3

Reports for Week Ended May 14, 1927

DIPHTHERIA	Cases
District of Columbia	18

INFLUENZA

District of Columbia	1

MEASLES

District of Columbia	5
North Dakota	71

SCARLET FEVER	Cases
District of Columbia	25
North Dakota	32

SMALLPOX

District of Columbia	2
North Dakota	3

TYPHOID FEVER

North Dakota	1

[1] Week ended Friday.

[2] Exclusive of New York City.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March, 1927										
Colorado		70	6		4,547		0	954	49	6
Delaware	1	7	3		52		0	138	0	0
April, 1927										
Alabama	4	115	812	118	1,326	63	2	62	239	93
Colorado		76	2		1,623		0	670	27	20
Iowa	1	118			1,680		0	197	70	24
Massachusetts	10	381	65		1,401	2	4	2,001	0	26
Michigan		406	19	2	1,027		0	1,077	128	29
New Jersey	3	484	107	1	326		2	1,398	0	26
New York	19	1,992		4	3,584	0	12	4,747	23	71
North Dakota	3	29			628		4	327	37	8
Tennessee	6	50	990	49	698	48	0	191	100	60

March, 1927

	Cases
Chicken pox:	
Colorado	287
Delaware	21
German measles:	
Colorado	32
Impetigo contagiosa:	
Colorado	10
Mumps:	
Colorado	94
Delaware	7
Ophthalmia neonatorum:	
Delaware	1
Scabies:	
Colorado	1
Septic sore throat:	
Colorado	4
Whooping cough:	
Colorado	46
Delaware	16

April, 1927

	Cases
Actinomycosis:	
Massachusetts	1
Anthrax:	
Massachusetts	2
New Jersey	1
Tennessee	1
Chicken pox:	
Alabama	201
Colorado	150
Iowa	170
Massachusetts	971
Michigan	1,016
New Jersey	1,284
New York	2,698
North Dakota	28
Tennessee	278
Dengue:	
Alabama	3

April, 1927—Continued

	Cases
Dysentery:	
New Jersey	1
New York	2
Tennessee	1
German measles:	
Colorado	45
Iowa	19
Massachusetts	92
Michigan	155
New York	1,302
Impetigo contagiosa:	
Colorado	6
Iowa	1
Lead poisoning:	
Massachusetts	4
Lethargic encephalitis:	
Alabama	2
Massachusetts	6
Michigan	4
New York	22
Mumps:	
Alabama	145
Colorado	87
Iowa	147
Massachusetts	1,720
Michigan	966
New York	3,646
North Dakota	43
Tennessee	118
Ophthalmia neonatorum:	
Massachusetts	162
New Jersey	3
Paratyphoid fever:	
New York	3
Puerperal septicemia:	
New York	16
Rabies in animals:	
New York	20

April, 1927—Continued

	Cases
Rabies in man:	
Michigan	1
New York	2
Tennessee	3
Septic sore throat:	
Colorado	1
Iowa	1
Massachusetts	21
Michigan	3
New York	20
Tennessee	3
Tetanus:	
Massachusetts	2
New York	5
Trachoma:	
Iowa	1
Massachusetts	3

April, 1927—Continued

	Cases
Trachoma—Continued.	
New Jersey	3
New York	1
Typhus fever:	
Alabama	1
Vincent's angina:	
Iowa	1
New York	91
Whooping cough:	
Alabama	308
Colorado	52
Iowa	70
Massachusetts	625
Michigan	539
New Jersey	817
New York	1,110
Tennessee	357

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the 95 cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 7, 1927, and May 8, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
39 States	1,617	1,171	
101 cities	1,088	674	847
Measles:			
38 States	13,484	24,472	
101 cities	4,149	9,999	
Poliomyelitis:			
39 States	16	12	
Scarlet fever:			
39 States	4,773	3,912	
101 cities	2,140	1,714	1,154
Smallpox:			
39 States	674	639	
101 cities	130	153	130
Typhoid fever:			
39 States	252	208	
101 cities	56	45	52
Deaths reported			
Influenza and pneumonia:			
95 cities	837	1,071	
Smallpox:			
95 cities	0	7	
Chicago	0	1	
Los Angeles	0	5	
San Francisco	0	1	

City reports for week ended May 7, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	1	1	1	0	0	0	1	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	1
Manchester	83,097	0	1	0	0	3	0	0	3
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Massachusetts:									
Boston	779,620	58	49	34	2	2	92	90	27
Fall River	128,993	6	3	5	1	0	1	2	1
Springfield	142,065	10	2	3	1	0	0	2	2
Worcester	190,757	4	4	4	0	0	0	5	3
Rhode Island:									
Pawtucket	69,760	4	1	0	0	0	0	1	1
Providence	267,918	0	9	1	0	0	2	0	6
Connecticut:									
Bridgeport	(1)	3	4	5	1	0	18	2	1
Hartford	160,197	6	5	2	0	0	1	3	10
New Haven	178,927	9	3	1	0	0	1	7	7
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	13	9	8	....	0	10	11	16
New York	5,873,356	273	227	415	49	17	56	444	204
Rochester	316,786	10	9	23	....	0	20	4	2
Syracuse	182,003	11	5	1	....	0	140	9	4
New Jersey:									
Camden	128,642	3	4	10	0	0	1	1	4
Newark	452,513	96	14	13	2	0	11	122	6
Trenton	132,020	5	3	1	0	2	0	0	4
Pennsylvania:									
Philadelphia	1,979,364	94	70	55	....	5	39	140	53
Pittsburgh	631,563	58	16	26	....	7	90	6	43
Reading	112,707	8	3	1	....	0	64	30	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	12	6	9	0	2	2	16	13
Cleveland	936,485	84	22	56	2	1	7	92	17
Columbus	279,836	4	3	3	0	1	4	1	4
Toledo	287,380	52	4	6	1	1	17	4	4
Indiana:									
Fort Wayne	97,846	5	2	1	0	0	24	0	4
Indianapolis	358,819	24	4	5	0	0	14	25	21
South Bend	80,091	0	1	1	0	0	8	0	3
Terre Haute	71,071	0	0	0	0	0	28	0	0
Illinois:									
Chicago	2,995,239	100	77	86	14	1	576	178	65
Peoria	81,564	2	0	0	0	0	8	0	4
Springfield	63,923	3	0	1	0	0	11	0	1
Michigan:									
Detroit	1,245,824	82	46	53	2	4	9	135	37
Flint	130,316	10	3	4	0	0	14	1	10
Grand Rapids	153,698	1	4	0	0	1	14	2	1

[1] No estimate made.

City reports for week ended May 7, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	50, 891	14	1	0	0	0	15	43	1
Madison	46, 385	5	1	0	0	0	19	0	1
Milwaukee	509, 192	80	11	14	0	0	108	127	0
Racine	67, 707	10	1	4	0	0	6	26	1
Superior	39, 671	6	0	2	0	0	6	0	4
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110, 502	12	1	0	0	0	27	1	4
Minneapolis	425, 435	102	16	7	0	0	13	0	2
St. Paul	246, 001	29	14	15	0	1	27	1	3
Iowa:									
Davenport	52, 469	0	1	0	0	--------	3	3	--------
Des Moines	141, 441	0	3	2	0	--------	4	0	6
Sioux City	76, 411	1	1	0	0	--------	105	7	--------
Waterloo	36, 771	1	1	0	0	--------	5	0	--------
Missouri:									
Kansas City	367, 481	22	6	2	0	2	79	5	11
St. Joseph	78, 342	1	1	0	0	0	49	0	6
St. Louis	821, 543	27	38	40	0	0	56	85	--------
North Dakota:									
Fargo	26, 403	3	0	0	0	0	30	9	0
Grand Forks	14, 811	0	0	0		--------	0	0	--------
South Dakota:									
Aberdeen	15, 036	1	0	0	0	--------	10	1	--------
Sioux Falls	30, 127	1	1	0	0	--------	27	0	--------
Nebraska:									
Lincoln	60, 941	5	1	1	0	0	114	6	2
Omaha	211, 768	0	2	1	0	0	51	15	3
Kansas:									
Topeka	55, 411	1	0	1	0	1	290	0	2
Wichita	88, 367	15	0	0	0	0	37	0	2
SOUTH ATLANTIC									
Delaware:									
Wilmington	122, 049	2	1	4	0	0	0	0	2
Maryland:									
Baltimore	796, 296	66	22	32	9	5	4	20	30
Cumberland	33, 741	0	0	0	0	0	2	1	0
Frederick	12, 035	0	0	0	1	0	0	0	0
District of Columbia:									
Washington	497, 906	35	12	20	2	2	12	0	8
Virginia:									
Lynchburg	30, 395	14	1	2	0	0	21	1	1
Norfolk	(1)	23	0	2	0	0	271	16	2
Richmond	186, 403	4	2	3	0	2	110	7	2
Roanoke	58, 208	1	0	0	0	0	2	0	2
West Virginia:									
Charleston	49, 019	4	0	0	0	0	4	0	1
Wheeling	56, 208	1	1	1	0	0	14	0	3
North Carolina:									
Raleigh	30, 371	7	0	0	0	0	68	0	1
Wilmington	37, 061	0	1	0	0	0	31	13	2
Winston-Salem	69, 031	7	1	1	0	0	210	47	2
South Carolina:									
Charleston	73, 125	1	0	0	35	0	22	1	1
Columbia	41, 225	1	0	0	0	--------	3	1	1
Greenville	27, 311	0	0	0	0	0	3	1	0
Georgia:									
Atlanta	(1)	2	1	0	9	0	35	6	3
Brunswick	16, 809	0	0	0	0	0	0	15	0
Savannah	93, 134	3	0	1	9	0	6	0	1
Florida:									
Miami	69, 754	10	3	0	0	0	3	2	
St. Petersburg	26, 847	--------	0	--------	--------	0	--------	--------	0
Tampa	94, 743	1	0	0	0	0	56	0	1

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City reports for week ended May 7, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	0	0	1	4	1	2
Louisville	305,935	2	3	1	0	0	2	8	13
Tennessee:									
Memphis	174,533	1	3	5	0	5	5	3	2
Nashville	136,220	14	0	1	0	0	1	0	4
Alabama:									
Birmingham	205,670	9	1	7	5	1	49	7	5
Mobile	65,955	0	0	0	0	1	0	0	2
Montgomery	46,481	4	0	1	0	0	41	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	3	0	0	0		13	2	1
Little Rock	74,216	0	0	0	0	0	11	0	1
Louisiana:									
New Orleans	414,493	1	7	17	3	2	29	0	11
Shreveport	57,857	2	0	1	0	0	35	7	2
Oklahoma:									
Oklahoma City	(1)	12	0	0	10	0	0	0	3
Tulsa	124,478	18	1	0	0		162	24	
Texas:									
Dallas	194,450	6	3	8	0	0	116	3	3
Galveston	48,375	0	0	0	0	0	0	0	1
Houston	164,954	5	3	4	0	0	7	0	1
San Antonio	198,069	1	0	4	0	1	1	0	7
MOUNTAIN									
Montana:									
Billings	17,971	5	0	0	0	0	5	0	1
Great Falls	29,883	6	1	0	0	0	6	0	0
Helena	12,037	1	0	0	0	0	0	0	1
Missoula	12,668	0	0	0	0	0	1	0	0
Idaho:									
Boise	23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	280,911	21	11	6		1	76	4	5
Pueblo	43,787	9	1	0	0	0	81	0	1
New Mexico:									
Albuquerque	21,000	1	1	1	0	0	4	10	2
Utah:									
Salt Lake City	130,948	38	3	10	0	0	13	1	3
Nevada:									
Reno	12,665	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	26	5	2	0		91	58	
Spokane	108,897	2	2	0	0		2	0	
Tacoma	104,455	12	1	0	0	0	63	0	4
California:									
Los Angeles	(1)	52	37	34	20	2	336	12	16
Sacramento	72,260	6	2	2	0	0	6	2	2
San Francisco	557,530	64	19	4	2	4	115	96	1

[1] No estimate made.

City reports for week ended May 7, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths all causes
NEW ENGLAND											
Maine:											
Portland	3	0	0	0	0	1	0	0	0	0	24
New Hampshire:											
Concord	0	1	0	0	0	1	0	0	0	0	6
Manchester	2	2	0	0	0	6	0	0	0	0	26
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	2
Massachusetts:											
Boston	58	120	0	0	0	8	2	0	0	8	213
Fall River	3	5	0	0	0	5	1	0	0	0	34
Springfield	6	9	0	0	0	3	0	0	0	4	42
Worcester	8	6	0	0	0	3	0	0	0	1	38
Rhode Island:											
Pawtucket	1	1	0	0	0	0	0	0	0	3	12
Providence	9	4	0	0	0	6	0	0	0	1	81
Connecticut:											
Bridgeport	9	9	0	0	0	1	0	0	0	0	27
Hartford	4	10	0	0	0	4	0	0	0	1	69
New Haven	7	4	0	0	0	4	0	1	0	2	42
MIDDLE ATLANTIC											
New York:											
Buffalo	18	23	0	0	0	11	0	1	0	7	146
New York	265	832	0	0	0	[1] 102	10	15	1	95	1,536
Rochester	14	14	0	0	0	2	0	0	0	1	88
Syracuse	10	2	0	0	0	2	1	0	0	7	51
New Jersey:											
Camden	6	4	0	0	0	1	0	0	0	0	31
Newark	24	46	0	0	0	7	0	2	0	41	88
Trenton	3	3	0	0	0	10	1	0	0	0	43
Pennsylvania:											
Philadelphia	77	131	1	0	0	39	4	2	0	23	485
Pittsburgh	27	38	0	0	0	12	1	0	0	13	213
Reading	3	4	0	0	0	2	0	0	0	2	29
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	35	2	1	0	9	1	0	1	1	138
Cleveland	32	43	0	0	0	14	1	1	0	28	179
Columbus	9	9	2	1	0	5	0	0	0	9	84
Toledo	13	11	4	1	0	6	0	0	0	20	83
Indiana:											
Fort Wayne	4	2	2	2	0	0	1	1	0	1	29
Indianapolis	9	16	12	27	0	6	1	0	0	30	113
South Bend	3	3	1	0	0	1	0	0	0	0	12
Terre Haute	3	0	1	0	0	1	0	0	0	1	11
Illinois:											
Chicago	14	108	2	4	0	61	3	3	1	73	720
Peoria	3	3	0	0	0	1	0	0	0	0	21
Springfield	2	4	0	0	0	0	0	0	0	0	16
Michigan:											
Detroit	80	103	2	2	0	26	2	3	0	88	305
Flint	5	31	2	2	0	0	0	0	0	0	28
Grand Rapids	7	14	1	3	0	1	0	0	0	6	30
Wisconsin:											
Kenosha	2	10	1	0	0	1	0	1	0	2	10
Madison	2	8	1	0	0	0	0	0	0	17	12
Milwaukee	24	38	1	0	0	9	0	1	0	30	133
Racine	4	4	1	0	0	0	0	0	0	18	13
Superior	2	5	1	0	0	3	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	10	1	0	0	4	1	0	0	1	21
Minneapolis	37	44	7	0	0	1	0	0	0	1	89
St. Paul	23	17	4	0	0	3	0	0	0	16	54

[1] Pulmonary tuberculosis only.

City reports for week ended May 7, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport	2	0	3	0			0	0		1	
Des Moines	7	3	2	1			0	0		0	39
Sioux City	2	3	1	2			0	0		5	
Waterloo	1	0	0	0			0	0		3	
Missouri:											
Kansas City	9	21	1	3	0	5	0	0	0	23	89
St. Joseph	2	4	1	5	0	1	0	0	0	0	32
St. Louis	31	25	4	4	0	13	1	1	0	41	199
North Dakota:											
Fargo	2	2	0	1	0	0	0	0	0	0	7
Grand Forks	1	7	0	0			0	0		0	
South Dakota:											
Aberdeen	3	0	0	0			0	0		0	
Sioux Falls	1	8	1	0			0	0		0	
Nebraska:											
Lincoln	1	0	1	0	0	0	0	0	0	0	16
Omaha	3	9	8	1	0	2	0	0	0	2	55
Kansas:											
Topeka	3	1	1	1	0	0	0	0	0	5	9
Wichita	2	1	2	0	0	0	0	0	0	8	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	4	0	0	0	0	1	0	0	2	27
Maryland:											
Baltimore	34	27	1	0	0	15	2	0	0	41	242
Cumberland	1	0	0	0	0	0	0	0	0	0	8
Frederick	0	0	0	0	0	1	0	0	0	0	7
District of Col.:											
Washington	23	24	1	0	0	16	1	1	0	14	159
Virginia:											
Lynchburg	0	0	0	0	0	0	1	0	0	9	14
Norfolk	2	0	0	0	0	4	0	0	0	11	
Richmond	3	4	1	0	0	4	0	2	0	1	51
Roanoke	0	0	1	7	0	0	0	0	0	2	15
West Virginia:											
Charleston	1	1	0	0	0	0	0	0	1	9	14
Wheeling	2	1	0	0	0	1	1	0	0	1	20
North Carolina:											
Raleigh	0	3	0	0	0	3	0	0	0	17	15
Wilmington	0	0	0	0	0	0	1	0	0	4	9
Winston-Salem	1	1	5	8	0	0	1	0	0	60	16
South Carolina:											
Charleston	0	0	0	0	0	3	0	3	0	6	24
Columbia	0	0	1	0		1	0	0		17	11
Greenville	0	1	0	0	0	0	0	0	0	0	6
Georgia:											
Atlanta	3	4	4	2	0	4	0	1	1	25	58
Brunswick	0	0	0	1	0	0	0	0	0	1	3
Savannah	0	0	1	5	0	2	0	2	0	1	23
Florida:											
Miami	1	0		1	0	0	1	1	0	7	38
St. Petersburg	0		0		0	0	0		0		13
Tampa	0	1	0	0	0	5	1	1	0	2	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	1	0	0	0	0	0	0	0	0	13
Louisville	6	18	1	1	0	1	1	0	0	14	85
Tennessee:											
Memphis	4	14	3	4	0	8	1	2	0	7	64
Nashville	2	1	1	0	0	3	0	1	0	3	40
Alabama:											
Birmingham	2	1	8	5	0	3	1	0	0	4	59
Mobile	0	1	1	0	0	4	1	0	1	0	25
Montgomery	0	0	1	1	0	0	0	0	0	3	

City reports for week ended May 7, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0			0	2	1	4	7
Little Rock	0	0	0	0	0	1	1	3	0	0	
Louisiana:											
New Orleans	4	5	2	0	0	9	2	1	0	9	153
Shreveport	0	0	1	0	0	1	1	0	0	0	25
Oklahoma:											
Oklahoma City	1	0	3	0	0	0	0	0	0	0	22
Tulsa	1	4	2	2			0	0		4	
Texas:											
Dallas	2	4	4	4	0	5	0	0	0	3	49
Galveston	0	0	1	0	0	1	1	2	0	0	13
Houston	1	3	0	4	0	3	0	1	0	4	38
San Antonio	1	2	0	0	0	10	0	0	1	0	77
MOUNTAIN											
Montana:											
Billings	1	2	1	0	0	0	0	0	0	0	8
Great Falls	1	2	1	0	0	0	0	1	0	0	6
Helena	0	0	0	1	0	0	0	0	0	0	6
Missoula	0	6	1	0	0	0	0	0	0	0	3
Idaho:											
Boise	1	0	1	0	0	0	0	0	0	0	5
Colorado:											
Denver	12	64	2	0	0	8	0	1	0	7	74
Pueblo	0	25	0	0	0	3	0	0	0	0	18
New Mexico:											
Albuquerque	1	0	0	0	0	5	0	0	0	0	17
Utah:											
Salt Lake City	2	13	0	3	0	2	0	0	0	17	36
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	9	3	4	1			0	0		28	
Spokane	4	18	5	13			1	0		6	
Tacoma	3	7	3	9	0	2	0	0	0	2	28
California:											
Los Angeles	21	31	6	0	0	26	1	0	0	25	241
Sacramento	2	0	1	5	0	2	0	0	0	1	
San Francisco	13	22	4	0	0	14	1	1	0	56	138

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	1	0	0	0	0	1	1	0
MIDDLE ATLANTIC									
New York:									
New York	7	5	13	4	0	0	1	0	1
New Jersey:									
Camden	0	0	1	1	0	0	0	0	0
Newark	1	1	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	1	2	0	0	0	0	0
Pittsburgh	0	3	0	0	0	0	0	0	0
Reading	0	1	0	0	0	0	0	0	0

City reports for week ended May 7, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	1	0	0	0	0	0	0
Illinois:									
Chicago	7	3	2	0	0	0	1	0	0
Michigan:									
Detroit	1	1	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee	2	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
South Carolina:									
Charleston [1]	0	0	0	0	3	0	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville	1	0	0	0	0	0	0	0	0
Tennessee:									
Nashville	0	0	0	0	1	1	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	1	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	0	0	0	1	1	0	1	0
Texas:									
Dallas	0	1	0	0	1	1	0	0	0
Galveston	0	0	0	0	0	0	0	1	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Billings	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	1		0		0		0	0	
California:									
Sacramento	1	3	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	2	1

[1] Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended May 7, 1927, compared with those for a like period ended May 8, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the

cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, April 3 to May 7, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

	Week ended—									
	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927
DIPHTHERIA CASE RATES										
101 cities	110	[2] 202	110	[3] 175	118	180	110	171	115	183
New England	125	181	47	104	73	135	83	95	106	130
Middle Atlantic	125	269	119	271	162	270	114	243	126	273
East North Central	88	[3] 170	86	[3] 136	87	132	98	138	89	160
West North Central	204	171	246	109	182	141	204	159	198	131
South Atlantic	86	[4] 126	89	141	67	136	67	105	75	120
East South Central	114	66	47	87	26	31	72	76	62	76
West South Central	60	340	30	143	47	126	56	180	60	143
Mountain	118	171	191	108	82	189	118	99	146	153
Pacific	137	126	134	115	145	157	153	188	177	110
MEASLES CASE RATES										
101 cities	1,781	[2] 864	1,770	[3] 762	1,792	785	1,708	640	1,713	699
New England	1,568	269	1,809	223	1,663	295	1,526	323	1,710	269
Middle Atlantic	1,773	159	1,702	173	1,596	146	1,420	231	1,432	213
East North Central	1,572	[3] 920	1,471	[3] 861	1,459	778	1,488	638	1,456	568
West North Central	3,283	1,304	3,354	1,318	4,148	1,556	4,060	1,229	4,511	1,527
South Atlantic	2,630	[4] 1,003	2,919	1,317	2,516	1,596	2,507	1,022	1,926	1,583
East South Central	3,020	611	2,772	397	3,434	520	2,875	377	3,237	520
West South Central	236	2,143	133	1,019	163	1,267	159	935	125	889
Mountain	419	2,796	529	2,086	1,075	1,798	866	1,546	884	1,636
Pacific	388	3,058	372	2,212	501	2,107	664	1,532	656	1,605
SCARLET FEVER CASE RATES										
101 cities	274	[2] 307	307	[3] 391	284	363	292	338	294	360
New England	318	362	373	423	222	346	281	402	222	392
Middle Atlantic	176	595	187	583	201	529	221	448	217	541
East North Central	330	[3] 272	343	[3] 280	288	296	290	282	310	283
West North Central	845	435	910	397	899	343	879	334	940	272
South Atlantic	145	[4] 189	181	150	158	161	216	194	175	129
East South Central	165	178	150	219	228	168	171	194	186	183
West South Central	116	101	133	50	172	42	146	34	176	59
Mountain	100	944	173	953	210	935	219	953	137	1,007
Pacific	155	243	338	243	260	209	204	199	206	212
SMALLPOX CASE RATES										
101 cities	32	[2] 27	26	[3] 24	31	33	26	21	26	22
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	18	[3] 37	14	[3] 32	22	29	19	33	22	28
West North Central	50	42	42	56	44	40	30	38	58	34
South Atlantic	67	[4] 27	43	27	47	65	28	20	30	36
East South Central	88	87	52	97	98	163	98	66	72	56
West South Central	133	105	95	88	112	96	146	25	159	34
Mountain	27	27	27	27	46	54	36	9	36	36
Pacific	137	55	137	26	139	97	102	65	56	73

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., and Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., not included.

Summary of weekly reports from cities, April 3 to May 7, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927
101 cities	7	[2] 8	7	[3] 8	8	7	9	8	8	9
New England	9	7	9	9	5	0	5	5	9	2
Middle Atlantic	5	6	7	5	8	7	6	5	7	10
East North Central	3	[3] 5	2	[3] 1	1	3	4	6	4	6
West North Central	10	2	4	12	6	4	6	4	6	2
South Atlantic	6	[4] 10	4	13	7	11	19	16	13	18
East South Central	10	36	0	36	26	31	21	31	16	15
West South Central	17	38	34	17	26	13	17	13	17	38
Mountain	18	0	9	9	0	27	18	9	0	18
Pacific	13	8	13	18	21	10	27	18	11	3

INFLUENZA DEATH RATES

95 cities	74	[2] 23	53	[3] 22	38	18	33	18	25	13
New England	83	7	52	16	40	12	35	7	14	5
Middle Atlantic	76	26	59	21	34	20	27	21	22	15
East North Central	81	[3] 9	67	[3] 11	42	11	46	10	29	7
West North Central	32	17	23	12	32	21	17	12	13	8
South Atlantic	59	[4] 41	43	39	30	22	28	20	19	17
East South Central	238	71	47	87	103	56	98	36	98	41
West South Central	66	52	53	43	62	31	26	47	44	13
Mountain	46	36	46	18	46	0	9	9	18	9
Pacific	14	17	21	14	4	10	11	21	4	21

PNEUMONIA DEATH RATES

95 cities	277	[2] 163	241	[3] 154	201	159	177	144	163	131
New England	358	139	302	156	233	151	210	183	170	139
Middle Atlantic	339	199	288	176	240	199	219	169	175	167
East North Central	245	[3] 132	233	[3] 142	192	135	152	128	178	122
West North Central	186	137	133	129	137	125	108	56	122	69
South Atlantic	236	[4] 159	208	188	206	180	178	156	170	114
East South Central	429	209	331	132	259	153	233	127	222	143
West South Central	159	142	181	78	128	78	150	125	110	112
Mountain	137	243	155	153	109	162	118	189	82	99
Pacific	148	117	117	117	71	97	74	117	78	79

[2] Madison, Wis., and Norfolk, Va., not included.
[3] Madison, Wis., not included.
[4] Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended April 23, 1927.—The following report for the week ended April 23, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo	2	2	0	0	0	0	French Indo-China:						
British India:							Saigon and Cholon	0	0	26	22	0	0
Bombay	----	13	----	1	80	36	Haiphong	0	0	80	50	0	0
Calcutta	----	0	----	137	191	133	China:						
Rangoon	----	1	----	3	50	15	Canton	0	0	0	0	32	1
Bassein	----	6	----	6	0	0	Macao	0	0	0	0	----	2
Madras	----	0	----	0	6	1	Hong Kong	0	0	0	0	5	3
Vizagapatam	----	0	----	0	1	1	Kwantung: Dairen	0	0	0	0	1	0
Siam: Bangkok	0	0	9	6	2	2							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Aden.

Iraq.—Basra.

Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.

British India.—Karachi, Chittagong, Cochin, Negapatam, Tuticorin, Moulmein.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang, Singapore.

Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Palembang, Makassar, Balikpapan, Tarakan, Samarinda, Surabaya, Padang.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

French Indo-China.—Tourane.

Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

China.—Amoy, Tientsin, Shanghai.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo, Fusan.

Manchuria.—Yingkow, Antung, Changchun, Harbin, Mukden.

Kwantung.—Port Arthur.

Japan.—Yokohama, Nagasaki, Niigata, Shimonoseki, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Samoa.—Apia.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez, Alexandria.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Djibouti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Zanzibar.—Zanzibar.

Kenya.—Mombasa.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.

Reunion.—Saint Denis.

Mauritius.—Port Louis.

Madagascar.—Majunga, Tamatave, Diego-Suarez.

Reports had not been received in time for publication from:

Arabia.—Kamaran.
Union of Soviet Socialist Republics.—Vladivostock.

Belated information:

Week ended April 16: *Surabaya*, one fatal plague case. Other ports of *Dutch East Indies*, nil. *Colombo*, six plague cases and three deaths; one plague-infected rat has been found.
Week ended April 9: *Pondicherry* and *Karikal*, nil.

Movement of infected ships:

Singapore.—The S. S. *Donai* arrived on April 25 from Cholon infected with cholera.
Port Swettenham.—The S. S. *Tairea* arrived on April 22 from Madras infected with smallpox.

CANADA

Communicable diseases—Week ended May 7, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from six Provinces of Canada for the week ended May 7, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Manitoba	Saskatchewan	Alberta	Total
Influenza	37						37
Smallpox				1	7	11	19
Typhoid fever		2	112		3	1	118

CZECHOSLOVAKIA

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in the Republic of Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	21	10	Puerperal fever	49	18
Diphtheria	570	56	Scarlet fever	997	15
Dysentery	20	3	Trachoma	180	
Malaria	7		Typhoid fever	276	32
Paratyphoid fever	3		Typhus fever	35	3

EGYPT

Plague—April 9–21, 1927.—Plague has been reported in Egypt as follows: Week ended April 15, 1927, 6 cases, of which 1 case occurred in the city of Alexandria and 5 cases in the Province of Guerga, the total number of cases from January 1 to April 15, 1927, being 23. During the corresponding period of 1926 there were 10 cases. From April 16 to 21, 1927, 7 cases with 5 deaths, 1 case being septicemic. The occurrence was in four localities, with 4 cases in one locality, viz, El Berber. On April 29, 1 case was reported in the Province of Gharbia.

Communicable diseases—January 1–April 1, 1927 (comparative).—During the period from January 1 to April 1, 1927, communicable diseases were reported from Egypt as follows:

Disease	Jan. 1–Apr. 1, 1927		Corresponding period, 1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	8		3	
Influenza	1,940		1,067	
Smallpox	157	17	907	198
Typhoid fever	234		298	
Typhus fever	196	32		

ESTONIA

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	2	Tuberculosis	208
Diphtheria	34	Typhoid fever	35
Measles	276	Typhus fever	1
Scarlet fever	679		

Population, 1,114,630.

IRELAND (IRISH FREE STATE)

Typhus fever—Donegal County—April 24–30, 1927.—During the week ended April 30, 1927, a case of typhus fever was reported in Donegal County, Irish Free State, Ireland, occurring in the rural district of Letterkenny.

JAMAICA

Smallpox (alastrim)—April 3–30, 1927.—During the period April 3 to 30, 1927, 23 cases of smallpox, reported as alastrim, were notified in the island of Jamaica, occurring at localities other than Kingston, with 13 cases notified during the first week of the period under report and 1 case during the last week.

Other communicable diseases were reported as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis		1	Puerperal fever		4
Chicken pox	43	89	Tuberculosis	34	46
Dysentery	11	32	Typhoid fever	28	30
Leprosy	1	2			

MADAGASCAR

Plague—February 16–28, 1927.—During the period February 16 to 28, 1927, 148 cases of plague with 140 deaths were reported in the island of Madagascar. The occurrence was distributed in five Provinces, as follows: *Ambositra*—12 cases; *Antisirabe*—15 cases; *Miarinarivo*—40 cases; *Moramanga*—10 cases; *Tananarive*, including 2 cases in Tananarive town—71 cases. The distribution according to type was: Bubonic—74 cases; pneumonic—27 cases; septicemic—47 cases.

MEXICO

Epidemic measles—Vera Cruz—February, 1927.—Epidemic measles was reported present at Vera Cruz, Mexico, early in the month of February, 1927, many of the cases being of a severe type. To May 10, 1927, 26 fatalities from the disease were reported. It was stated that in some of the fatal cases of measles the cause of death was given as bronchitis, or broncho-pneumonia.

MOROCCO

Typhus fever—Sanitary conditions—Precautions against spread.—Information dated April 9, 1927, shows an increased prevalence of typhus fever in southern Morocco, the greatest prevalence being reported at Marrakech and Mogador. The greatest incidence was in the native population and in a battalion of Senegalese soldiers recently in charge of a sick native camp at Marrakech. A military cordon had been established to prevent movement of the native population, together with quarantine camps which provided bathing facilities, medical observation, disinfection and sterilization of clothing for all persons detained. The outbreak was attributed to failure of food supply and consequent movement of the population to seek more favorable living conditions.

VIRGIN ISLANDS

Communicable diseases—April, 1927.—During the month of April, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid	1	
Chicken pox	1	
Gonorrhea	3	
Influenza	4	
Syphilis	7	Secondary, 6; tertiary, 1.
Tuberculosis	1	Chronic, pulmonary.
St. Croix:		
Filariasis	7	Bancrofti.
Gonorrhea	5	
Leprosy	1	
Schistosomiasis	1	Mansoni.
Uncinariasis	1	Necator americanus.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended May 27, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking	Mar. 13-19			Present.
French Settlements in India	Jan. 23-Mar. 5	10	8	
India				Feb. 20-26, 1927: Cases, 1,581; deaths, 900.
Calcutta	Mar. 27-Apr. 9	144	133	
Madras	Apr. 10-16	1	1	
Indo-China (French)	Feb. 1-Mar. 20	281		
Siam				Mar. 27-Apr. 2, 1927: Cases, 46; deaths, 31.
Bangkok	Mar. 27-Apr. 2	16	9	District.

PLAGUE

Place	Date	Cases	Deaths	Remarks
Egypt:				
Alexandria	Apr. 9-15	1		
Guerga Province	Apr. 9-21	12	5	
Gharbia Province	Apr. 29	1		
India				Feb. 20-26, 1927: Cases, 2,404; deaths, 1,521.
Bombay	Mar. 27-Apr. 2	6	6	
Madras Presidency	Mar. 20-26	36	22	
Indo-China (French)	Feb. 1-28	3		
Java:				
Batavia	Apr. 3-9	7	7	Province.
Pribolingo district	Jan. 7			Outbreak at Ngadas.
Semarang	do			Seaport. Present.
Madagascar				Feb. 16-28, 1927: Cases, 148; deaths, 140.
Province—				
Ambositra	Feb. 16-28	12	12	Bubonic, 3; septicemic, 9.
Antisirabe	do	15	15	Bubonic, 2; pneumonic, 4; septicemic, 9.
Miarinarivo (Itasy)	do	40	39	Bubonic, 20; pneumonic, 9; septicemic, 11.
Moramanga	do	10	5	Bubonic, 7; pneumonic, 1; septicemic, 2.
Tananarive	do	71	69	Bubonic, 42; pneumonic, 13; septicemic, 16. Including 2 cases in Tananarive Town.
Nigeria	Dec. 1-31	67	65	
Do	Jan. 1-31	42	42	
Russia	Nov. 1-Dec. 31	34		
Union of South Africa:				
Cape Providence—				
Hanover district	Mar. 27-Apr. 2	2	1	At Linde railway siding. Native.
Tarkastad district	do	3	1	On Spring Valley farm. Native.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria				Feb. 21-Mar. 20, 1927: Cases, 191.
Canada	May 1-7			Cases, 19.
Alberta	do	11		
Calgary	May 1-7	5		
Manitoba	do	1		
Winnipeg	May 8-14	3		
Ontario—				
Ottawa	May 1-7	2		
Toronto	do	14		
Saskatchewan	do	7		
China:				
Chefoo	Apr. 3-9			Present.
Chungking	Mar. 13-19			Do.
Foochow	Mar. 27-Apr. 2			Do.
Manchuria—				
Anshan	Apr. 10-16	1		
Dairen	Mar. 14-Apr. 3	17	6	
Mukden	Apr. 3-9	1		
Tiehling	do	1		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued				
Shanghai	Apr. 3-9	1		Foreign settlement.
Swatow	Mar. 27-Apr. 9			Prevalent.
Tientsin	Apr. 3-9	6	1	Reported by British municipality and 1 mission hospital.
Chosen				Jan. 1-31, 1927: Cases, 98; deaths, 21.
Egypt:				
Alexandria	Apr. 2-8	1		
France:				
Paris	Apr. 11-20	5		
French Settlements in India	Jan. 23-Feb. 20	34	34	
Gold Coast	Jan. 1-31	5	1	
Great Britain:				
England and Wales—				
Newcastle-on-Tyne	Apr. 24-30	2		
Sheffield	Apr. 17-30	11		
Scotland—				
Dundee	Apr. 24-30	16		
Greece:				
Saloniki	Mar. 8-14		1	
India				Feb. 20-26, 1927: Cases, 6,353; deaths, 1,384.
Bombay	Mar. 27-Apr. 2	85	48	
Calcutta	Mar. 27-Apr. 9	538	404	
Karachi	Apr. 10-16	1	1	
Italy	Jan. 16-Feb. 26	2		
Jamaica				Apr. 3-30, 1927: Cases, 23 (alastrim).
Japan	Jan. 30-Feb. 26	33		
Sasebo	May 8-14	3		
Mexico				Dec. 1-31, 1926: Deaths, 154.
Mexico City	Apr. 24-30	2		Including municipalities in Federal district.
San Luis Potosi	May 1-7		1	
Netherlands India:				
Borneo	Feb. 7-28			Epidemic in 6 localities.
Nigeria	Jan. 1-31	96	12	
Russia	Nov. 1-Dec. 31	931		
Siam				Mar. 27-Apr. 2, 1927: Cases, 12; deaths, 3.
Bangkok	Mar. 27-Apr. 2	3	3	
Spain	Oct. 1-31		6	
Valencia	Apr. 24-30	1		
Tunisia	Feb. 21-Mar. 20	5		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Feb. 21-Mar. 20	126	4	
Bulgaria	Feb. 1-28	5	2	
Sofia	Apr. 16-22	1		
Chosen	Jan. 1-31	65	10	
Chemulpo	Mar. 1-31	5		
Seoul	do	8	1	
Czechoslovakia	do	35	3	
Estonia				Mar. 1-31, 1927: 1 case.
Ireland (Irish Free State):				
Donegal County—				
Letterkenny	Apr. 24-30	1		Rural district.
Italy	Jan. 16-Feb. 26	15		
Mexico	Dec. 1-31		28	
Morocco				Apr. 9, 1927: Prevalent.
Marrakech	Apr. 9			Present.
Mogador	do			Do.
Palestine				Apr. 12-25, 1927: Cases, 3.
Poland				Mar. 6-12, 1927: Cases, 157; deaths, 7.
Rumania	Jan. 1-31	391	31	
Russia	Nov. 1-Dec. 31	4,609		
Tunisia	Feb. 21-Mar. 20	69		
Union of South Africa:				
Cape Province	Mar. 27-Apr. 2			Outbreaks in Xalanga district.
Natal	do			At Bulwer location.

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
Gold Coast	Feb. 1-28	17	7	
Nigeria	Jan. 1-31	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927[1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	153	
French Settlements in India	Aug. 29-Dec. 18	131	97	
Do	Jan. 2-22	10	7	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 13,507.
Do	Jan. 2-Feb. 12			Cases, 15,862; deaths, 8,910.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Mar. 19	601	468	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Mar. 19	12	9	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Apr. 2	62	52	
Indo-China	July 1-Dec. 31			Cases, 8,508.
Do	Jan. 1-31	490		
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Mar. 26			Cases, 562; deaths, 395.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Mar. 26	96	56	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-Feb. 28	8		
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Mombasa	Feb. 27-Mar. 19	7	7	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Apr. 2	47	26	13 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Present.
Do	Feb. 6-Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Mar. 31	79	22	Rats taken, 71,517; found infected, 237.
Egypt	Jan. 1-Dec. 9			Cases, 149.
Do	Jan. 1-Mar. 18			Cases, 14.
Alexandria	Nov. 19-Dec. 2	2		
Do	Apr. 2-5	2	1	
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan. 4	1	1	
Guerga district	Apr. 5	1	1	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan. 27	1		
Port Said	Mar. 12-18	2	1	
Tanta district	Nov. 19-Dec. 20	3		
Greece:				
Athens and Piræus	Nov. 1-Dec. 31	19	5	
Do	Jan. 1-Mar. 31	24	3	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kevalla.
India	Oct. 10-Jan. 1			Cases, 16,162; deaths, 9,905.
Do	Jan. 2-Feb. 19			Cases, 9,696; deaths, 7,413.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Mar. 26	22	19	
Madras	Jan. 31-Jan. 1	581	324	
Do	Jan. 2-Mar. 19	965	570	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Apr. 2	55	50	Rats found plague infected, 12.
Indo-China	July 1-Dec. 31			Cases, 52; deaths, 34.
Do	Jan. 1-31	12		
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases. 22: deaths. 18
Iraq:				
Baghdad	Jan. 23-Mar. 12	4	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Mar. 26	244	237	Do.
East Java and Madura	Oct. 24-Jan. 1	17	17	
Do	Jan. 2-Mar. 5	18	18	
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan. 1-Feb. 15	46	44	
Analalava	Oct. 16-31	1	1	
Antisirabe	Dec. 16-21	2	2	
Do	Jan. 1-Feb. 15	54	54	
Diego-Suarez	do	7	7	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan. 1-Feb. 15	92	86	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-Feb. 15	50	48	
Tamatave	Oct. 16-Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1-Feb. 15	352	346	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Madagascar—Continued.				
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	47	
Do	Jan. 1-Feb. 15	19	18	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Do	Jan. 1-31	5	3	
Nigeria	Aug. 1-Nov. 30	999	902	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-Mar. 31	92	23	
Departments—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-Mar. 31	3		
Cajamarca	do	36	6	
Callao	Mar. 1-31	1	1	
Ica—				
Chincha	Nov 1-30	1		
Lambayeque	Feb. 1-28	6	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb. 28	6		
Lima	Nov 1-Dec. 31	42	14	
Do	Jan 1-Mar. 31	75	20	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	
Russia	May 1-June 30	44		
Do	July 1-Sept. 30	64		
Senegal	July 1-31	178	162	
Dakar	Apr. 1-10	10	7	
Diourbel	Nov. 20-30	12	1	
Thies	Mar. 28-Apr. 20	17	15	
Tivaouane	Dec. 19-25	6	2	In interior.
Do	Mar. 21-Apr. 20	27	10	Do.
Siam	Apr. 1-Jan. 1			Cases 30; deaths, 22.
Do	Jan. 16-Mar. 26			Cases, 12; deaths, 10.
Bangkok	Feb. 27-Mar. 26	2	2	
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonia.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Mar. 26	4	2	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-8	1	1	
Middleburg district	Dec. 5-11	1	1	Do.
Richmond district	Mar. 6-12	3	2	
Orange Free State	do			Cases, 12; deaths, 2.
Bloomfontein district	Feb. 27-Mar. 19	3	3	
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23m	2		At Tamatave, Madagascar.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do.	Jan. 1-Feb. 20			Cases, 327.
Algiers	Dec. 11-31	4		
Do.	Jan. 1-Apr. 10	14		
Oran	Mar. 21-Apr. 20	31		
Angola	Oct. 1-15			Present in Congo district.
Congo	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange	Feb. 2-15	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Do.	Apr. 3-9	1		
Belgium	Oct. 1-10	1		
Brazil:				
Bahia	Oct. 30-Dec. 18	12	8	
Para	Oct. 31-Nov. 6		1	
Do.	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,033, deaths, 2,180.
Do.	Jan. 2-Apr. 16	77	34	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa.				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct 31-Nov. 20	2		
Do.	Jan. 2-Mar. 5	34	21	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do.	Feb. 20-Mar. 25	131	4	
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do.	Jan. 2-Apr. 30			Cases, 605.
Alberta	Dec. 5-Jan. 1	132		
Do.	Jan. 2-Apr. 30	237		
Calgary	Nov. 28-Dec. 25	12		
Do.	Jan. 2-Apr. 30	33	1	
Edmonton	Dec. 1-31	4		
Do.	Jan. 1-Mar. 31	18		
British Columbia—				
Vancouver	Jan. 31-Apr. 24	10		
Manitoba	Dec. 5-Jan. 1	9		
Do.	Jan. 2-Apr. 23	23		
Winnipeg	Dec. 19-25	1		
Do.	Jan. 2-May 7	10		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do.	Jan. 2-Apr. 30	289		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do.	Jan. 9-Apr. 23	9		
Toronto	Dec. 14-25	14		
Do.	Jan. 1-Apr. 30	78	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do.	Jan. 2-Apr. 30	57		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
Iquique	Mar. 1-15	2		
China:				
Amoy	Jan. 1-Mar. 26	8		
Anshan	Mar. 21-27	3		
Antung	do	1		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Mar. 20			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do.	Jan. 2-Mar. 12			Do.
Foochow	Nov. 7-Dec. 25			Do.
Do.	Feb. 27-Mar. 19			Do.
Hankow	Nov. 6-30			Do.
Hong Kong	Jan. 23-Apr. 2	121	81	
Manchuria—				
Dairen	Feb. 20-Mar. 6	6		
Harbin	Dec. 16-31	3		
Do.	Feb. 7-13	1		
Kai-Yuan	Mar. 20-27	2		
Mukden	Dec. 5-11	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Nanking	Dec. 12-25			Present.
Do	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 20-Mar. 26	1	2	
Swatow	Nov. 21-27			
Tientsin	Jan. 16-Apr. 2	27		
Chosen	Aug. 1-Nov. 30	53	19	
Do	Jan. 21-Feb. 20	7	1	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do	Jan. 1-Apr. 10	24	4	
French Settlements in India	Aug. 29-Jan. 1	127	127	
Do	Jan. 2-22	24	24	
French Sudan:				
Kita	Mar. 28-Apr. 3			Present.
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Do	Jan. 2-Apr. 23			Cases, 7,263.
Birmingham	Mar. 13-19	5		
Bradford	Jan 9-Apr 23	6		
Cardiff	Feb. 13-19	1		
Leeds	Mar. 27-Apr 16	2		
London	Reported Apr. 28	6		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do	Jan. 2-Apr. 23	20		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do	Jan. 2-Apr. 2	543	1	
Wakefield	Jan. 30-Feb. 2	2		
Scotland—				
Dundee	Mar. 31-Apr. 23	97		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Do	Mar. 1-31	9	2	Including Piraeus.
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do	Jan. 1-Mar. 31		74	
India	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,006.
Do	Jan. 2-Feb. 19			Cases, 31,471; deaths, 7,645.
Bombay	Nov. 7-Jan. 1	37	20	
Do	Jan. 2-Mar. 26	493	264	
Calcutta	Oct. 31-Jan. 1	449	311	
Do	Jan. 2-Mar. 19	1,876	1,372	
Karachi	Dec. 19-25	1	1	
Do	Jan. 2-Apr. 9	42	25	
Madras	Nov. 21-Jan. 1	32	2	
Do	Jan. 2-Apr. 9	294	11	
Rangoon	Nov. 28-Jan. 1	2	2	
Do	Jan. 2-Apr. 2	309	71	
Indo-China:				
Saigon	Dec. 26-Jan. 1	3		
Do	Feb. 6-Mar. 12	2		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do	Jan. 23-Apr. 2	7	1	
Basra	Nov. 7-13	2	1	
Do	Mar. 20-26			
Italy	Aug. 29-Jan. 1	28		
Do	Jan. 2-15	2		
Genoa	Dec. 30-31	1		
Do	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do	Jan. 2-Apr. 2	105		Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Japan	Oct. 24-Jan. 1	27		
Do	Jan. 2-9	28		
Kobe	Nov. 14-20	1		
Do	Jan. 23-Apr. 2	3		
Yokohama	Nov. 27-Dec. 3	2		
Do	Mar. 28-Apr. 1	3		
Java:				
Batavia	Nov. 29-Dec. 3	2		Province.
Do	Mar. 13-19	1		
East Java and Madura	Oct. 24-Dec. 25	11	1	
Do	Jan. 2-27	4	3	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		531	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan. 31-Feb. 6			Present.
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 25	7	5	
Mazatlan	Feb. 14-Apr. 17		3	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Apr. 23	7		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 21			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan. 31-Feb 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-Apr. 9		2	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-Apr. 9		27	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo; epidemic in two villages.
Nigeria	Aug. -Dec. 31	165	40	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Apr. 23	37		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Apr. 3	4		
Gueudel	Apr. 11-17	1		
Kebener	do	1		
Niger Colony	Apr. 1-20	3		
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Tivacuane	Apr. 11-17	2		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Mar. 26			Cases, 90, deaths, 40.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Mar. 25	42	25	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nandwa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 8-Apr. 23	10		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-Feb. 26	4	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-Feb. 20	13		
Tunis	Jan. 1-Mar. 10	3		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-Feb. 20			Cases, 84; deaths, 7.
Algiers	Feb. 1-Apr. 10	46		
Oran	Mar. 21-Apr. 20	8		
Angola:				
Benguela district	Feb. 16-28	1		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Do	Jan 1-31	7	3	
Chile	Sept. 15-Nov. 15	39	4	
Chillan	Jan. 1-31	4	3	
Concepcion	Sept. 15-Nov. 15	1		
Do	Jan. 23-29		1	
Iquique	Apr. 3-9		1	
Lebu	Sept 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	Sept. 15-Dec. 31	25	2	
Do	Feb. 1-28	3		
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Apr. 16	6	2	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Do	Feb. 27-Mar. 12			Do.
Chosen	Aug. 4-Dec. 31	54	5	
Seoul	Nov. 1-30	1		
Do	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do	Jan. 1-Feb. 28	48		
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-Apr 7	5	2	
Cairo	Oct 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-Feb. 28	13		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-Mar. 31	17	3	
Drama	Dec. 1-31	2		
Kavalla	do	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Greece—Continued.				
Patras	Jan. 23-29		1	
Ravokan	Dec. 1-31	1		
Saloniki	Jan. 25-31	1		
Indo-China:				
Tonkin	Aug. 1-31	2		
Iraq:				
Baghdad	Mar. 6-19	2	2	
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Donegal County—				
Letterkenny	Mar. 27-Apr. 2	5		Rural district.
Milford	do	3		
Italy	Aug. 29-Sept. 23	3		
Japan	Jan. 2-29			Cases, 2.
Tokyo prefecture	Dec. 5-25	9		
Tokyo City	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Do	Jan. 1-31	24		
Mexico	July 1-Nov. 30			Deaths, 576.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-Apr. 23	96		Do.
Parral	Jan. 30-Feb. 5	1		
Nigeria	Sept. 1-30	1		
Palestine:				
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Do	Apr. 5-11	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Year, 1926		9	District.
Lima	Jan. 1-31		1	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Mar. 5			Cases, 668; deaths, 61.
Rumania	Aug. 1-Nov. 30	255	11	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-Feb. 20	72		
Tunis	Jan. 21-Mar. 31	4		
Do	Reported Apr. 13	3		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-Feb. 28	51	4	
Do	Mar. 13-19			Outbreaks.
Clydesdale	Mar. 6-12			Do.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Xalanga district	Mar. 20-26			Outbreaks.
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 28	17	3	
Do	Mar. 13-19			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 20, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Mar. 31	74	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	7	
Nigeria	Sept. 1-Nov. 30	4	3	
Senegal	Dec. 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec. 7	1	1	
Rufisque	Nov. 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst Surg. Gen. C. C. PIERCE, *Chief of Division*

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PUBLIC HEALTH REPORTS

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AN EPIZOOTIC AMONG MEADOW MICE IN CALIFORNIA, CAUSED BY THE BACILLUS OF MOUSE SEPTICEMIA OR OF SWINE ERYSIPELAS

By N. E. WAYSON, *Surgeon, United States Public Health Service*

During the latter part of 1926 and the early months of 1927, the migration of large numbers of the native meadow mouse (*Microtus californicus estuarensis*) and of the house mouse (*Mus musculus*) from a land basin in Kern County, Calif., to outlying agricultural districts, caused much annoyance and considerable economic loss to the farmers of the communities affected.

Studies of the migrations were made by F. E. Garlough and W. P. Taylor, representatives of the United States Biological Survey. During their investigations of the causes and origin of the infestation, and of the application of suitable control measures, they observed many sick mice of each of the two species. The sick animals sat about with roached backs, roughened pelage, labored breathing, and with their eyelids glued together with purulent exudate, and were easily caught by hand. Carcasses which were partially destroyed, apparently by the cannibalistic feeding of the hordes of live mice, were also found. In order to determine whether these diseased animals were infected with *Bacillus pestis*, a number of specimens, which were apparently dying or had recently died, were collected and forwarded to the United States Public Health Service laboratory at San Francisco, engaged in plague-control measures in California. The specimens were shipped in ice packing to prevent putrefaction.

Forty-two meadow mice and 12 house mice were submitted for examination. Among these, 24 of the meadow mice and 6 of the house mice presented the gross pathology of a septicemia with the composite of the following lesions: Purulent conjunctivitis; congestion of the subcutaneous vessels producing a deep reddish-pink color in the subcutaneous tissues, with greatest intensity about the superficial lymph nodes; swelling, congestion, and infiltration of the superficial lymph nodes, with an occasional area of necrosis appearing as a white granule in the parenchyma of the node; scattered

patches of deep red color, some of which were infiltrated (pneumonia) in the lungs, with a small amount of pleural effusion; enlargement of the spleen to two or more times its normal size, with congestion, and an occasional minute whitish area of necrosis; congestion of the liver with whitish dots of necrosis similar to those of the spleen; scattered subserous petechiae in the intestine.

Microscopic preparations from the blood of the heart, and from the viscera, contained large numbers of a slender rod approximately one by two-tenths microns in size, stained by aniline dyes and by Gram's method. Many of the rods were grouped within the protoplasm of the white blood cells.

The organism grew readily on the routine nutrient media, producing, on agar, discrete translucent colonies of approximately three-tenths to five-tenths millimeter diameter in 48 hours at 37° C. The colonies were thin and bluish when exmained by transmitted light, with thin entire edges. The centers were heaped up so as to produce a flattened and truncated or umbilicated shape. The consistency was soft, but not viscid. Microscopic preparations from cultures contained slender, nonmotile rods generally longer than those found in preparations made directly from the tissues, and some thread-like forms of 5 to 7 microns in length.

Growth occurred, likewise readily, on nutrient agar to which an aqueous solution of gentian violet was added in the proportion of 1:50,000 (a medium which inhibits some of the *Pasteurella* group). Nutrient bouillon cultures were diffusely cloudy, without pellicle formation. Nutrient gelatine stab cultures, held at approximately 20° C. for from four to six weeks, contained a growth along the stab of single round or ellipsoidal entire colonies, with alternating areas of tuftlike fine branching whorls which extended into the media, producing a branching fir tree or "test tube brush" effect. Individual colonies also produced fine branching processes which radiated into the media, giving the colonies the appearance of bone lacunæ. Growth did not occur at the surface of the gelatine, but was good a few millimeters below the surface and throughout the length of the stab. The gelatine did not become liquefied in six weeks, and after artificial liquefaction by heat it was readily solidified by cooling.

Dextrose, levulose, lactose, galactose, and maltose were fermented with acid formation in 48 hours, but without gas. Sucrose, dextrin, and inulin were not fermented. The sugars were dissolved in five-tenths per cent strength in neutral nutrient bouillon containing litmus. Growth in litmus milk produced no change in 10 days.

The organism was pathogenic to white mice and white rats, slightly pathogenic to a rabbit, and not pathogenic to guinea pigs. Pathogenicity was tested by subcutaneous and intracutaneous injections of bouillon cultures, by feeding the cultures, and by sub-

cutaneous injection of the tissues of the infected wild rodents. Each of 10 white mice and 4 white rats was inoculated subcutaneously with from 0.3 cubic centimeter to 0.001 cubic centimeter of a 48-hour bouillon culture. All of these animals died in from three to five days after inoculation, with symptoms and lesions characteristic of those observed in the wild rodents. Two of three white mice, fed with bread cubes well moistened with the bouillon cultures, died with symptoms and findings similar to those found in the animals subcutaneously inoculated. A few drops of similar cultures were rubbed vigorously into the dorsal surface of the shaved, and lightly scarified ears of an 8 to 10 pound rabbit. On the second day following, the ears were drooped, and were swollen and red. The reddened swollen area extended beyond that on which the culture was applied. The reaction seemed to reach its maximum on the third day following the inoculation, and by the sixth day there was light incrustation and desquamation over the area. The ears appeared relatively normal by the tenth day, and the rabbit remained in good condition.

Three guinea pigs were inoculated by pocketing subcutaneously both spleen and lymph node tissue of the wild mice; three others were inoculated subcutaneously with 1 cubic centimeter of a suspension in physiological saline solution of similar tissues to an approximately 50 per cent strength. None of these pigs showed ill effects from the inoculations, and none presented gross pathology when autopsied two weeks later.

DISCUSSION

The symptoms and lesions observed in the wild mice, together with the reactions in the inoculated laboratory animals, and with the consistent bacteriological findings of a slender bacillus, appearing singly, in groups, and in thread forms, Gram positive, nonmotile, nonliquefying, non-gas-forming, facultatively aerobic and anaerobic, which grew in the gelatine stab in so characteristic a manner, seems adequate to establish the infection as that of *Bacillus murisepticus* or *Bacillus rhusiopathiae suis*.

Bacillus murisepticus was described by R. Koch (1) in 1876. He obtained the organism by injecting putrefying tissues into mice. He is consistently quoted as stating that it is nonpathogenic to field mice (Feldmause). However, the term "field mice" is too broad to permit of accurate deductions as to the species Koch concerned himself with.

Loeffler (2) later described the organism as a causative factor in a sporadic outbreak among his stock mice.

T. Smith (3), V. A. Moore (4), and C. Tenbroeck (5), have each reported its isolation from hogs.

F. J. Rosenbach (6) studied the bacilli of mouse septicemia, swine erysipelas, and of human erysipeloid; and though he found the three identical by serological tests, he believed there are biological and morphological differences which warrant the conclusion that they are three species of one group.

Rickman (7) challenged Rosenbach's conclusions after a study of a hundred strains of swine erysipelas, Rosenbach's strain from human erysipeloid, and an authentic strain of mouse septicemia. He concluded that the organisms are identical.

Hugo Preisz (8) reviewed the findings of Rosenbach and others, and made personal investigations and observations. He concluded from these studies that the separate identities of *B. murisepticus* and *B. rhusiopathiae suis* are not established.

The virulence of the organism apparently fluctuates greatly. It may be enhanced, and can be rapidly depressed by animal passage, especially through animals of different genus from those in which it is found as the excitant of clinical symptoms. Pasteur made use of this fact in preparing a vaccine against swine erysipelas. The organism has also been considered a saprophyte which is ubiquitous in soil. In fact, it is generally conceded that the fluctuation of the virulence of the organism in nature is undertermined. Further evidence in substantiation of this conclusion is afforded by the findings in this epizootic among meadow mice and house mice. Field mice have been regarded as immune, and spontaneous outbreaks of the infection among house mice as of rare occurrence.

Preisz (8) and numerous others have determined it to be the cause of outbreaks of erysipelas, arthritis, and septicemia in hogs, in Europe, with large numbers of fatalities and great economic losses.

G. T. Creech (9) investigated its prevalence in the United States and determined that it was the etiologic factor in the "diamond skin disease of swine," which he describes as a chronic form of swine erysipelas, widespread in the United States.

J. V. Klauder (10) has reviewed the subject of swine erysipelas in the United States, and its relation to erysipeloid diseases in man. He cites, and apparently accepts, the opinion of German investigators who have attributed these human infections to accidental inoculations from the tissues of animals affected with swine erysipelas. Such infections of man occur most frequently among those involved in animal husbandry, or in the slaughtering of hogs, and in the processing of their tissues for food purposes.

The exact manner of dissemination of the organism in nature has not been determined, but it is assumed that the soil and other environs of infected swine are contaminated by their dejecta, since the organism has been found in the tonsil and in the intestinal contents of infected animals. It is also thought that mice or rats are

likely to become infected through contact with, or feeding upon, the inoculum spread by infected hogs. This view is based largely on the results of laboratory experiments with hogs and mice. The limited field and laboratory observations in this mouse epizootic suggest that the feeding by mice on infected mouse carcasses might spread the infection.

The possibility of an ectoparasitic vector was also considered in this epizootic, and a careful search was made for such parasites, after precautions were taken to avoid their escape from the animal or its paper wrappings. One *microtus* was found to harbor a number of fleas of the species *Ceratophyllus fasciatus*, a few had one or two of the same species. On most of them no fleas were discovered. Several of both species of mice contained many mites, which were identified by Dr. H. E. Ewing, Entomologist of the United States Department of Agriculture, as a species of *Laelaps*, not the common *echidinus* Berl. Experimental attempts to transmit the infection by these parasites were not practicable, but the scarcity of the fleas and mites on the sick animals captured alive is not suggestive of their probable importance in this instance as vectors.

CONCLUSIONS

There has been found in Southern California an epizootic among meadow mice and house mice caused by *B. murisepticus*. The differentiation of *B. murisepticus* and *B. rhusiopathiae suis* has never been definitely determined, and the organisms are very closely related or identical. The virulence of the organism is subject to such vagaries, and the pathogenicity of some strains to swine and to man seems so well established, that this unusual epizootic may be of importance both to the public health and to the hog industry of California.

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THE FOOD OF ANOPHELINE LARVAE—FOOD ORGANISMS IN PURE CULTURE

By M. A. Barber, *Special Expert, United States Public Health Service*

Food is an important factor in the growth of anopheline larvae; and, since the numbers of adult mosquitoes produced, their size, and possibly their longevity, may depend on the nourishment of the larvae, food may have an important bearing on the transmission of malaria.

Numerous observations have been recorded regarding the food of mosquito larvae, most of them based on feeding habits observed in nature, on plankton surveys, and on gut contents found at dissection. Good summaries of previous observations may be found in the accounts given by Howard, Dyar, and Knab (1), Metz (2), Purdy (3), Lamborn (4), Rudolfs (5), and Coggeshall (6). Such observations, however, do not furnish wholly complete and satisfactory information, since anopheline larvae will ingest any substance, not distinctly repugnant, which is small enough to enter the mouth. Particles of sand and other indigestible substances are frequently found in the gut, and microorganisms and other organic substances may be discharged undigested in the feces. Further, the gut may contain a great variety of organisms, and one does not know which of them may be an essential or sufficient source of nourishment. So it seemed worth while to attempt to obtain some fundamental knowledge regarding the food of larvae by means of testing food organisms in pure culture.

Mosquito eggs are, of course, not sterile, and the organisms on them must first be eliminated. Insect eggs have been successfully sterilized in a variety of ways; but, so far as I know, there is in the literature but one account of the sterilization of mosquito eggs, that of Atkin and Bacot (7), who used lysol in dilutions of 2.0 and 0.5 per cent in sterilizing the eggs of *Aedes aegypti*. I have tried various germicides with more or less success and finally devised a method which proved very simple and gave me workable results.

A tin teaspoon is perforated by many small holes and fixed in a lens holder or other convenient support. (See Fig. 1.) The spoon may be easily sterilized by means of a Bunsen flame. In the hollow of the sterilized spoon is placed a piece of sterilized cloth. Eggs are transferred from the water on which they were laid and placed on the cloth by means of a platinum loop. about 6 mm. in diameter, bent at right angles to its shaft. This loop is easily sterilized in the flame and will transfer the eggs with a minimum amount of water. Then 80 per cent ethyl alcohol is dripped over the eggs for a period of two to three minutes. The alcohol is not only germicidal, but to some extent it also washes the eggs. During sterilization the eggs are

moved about by the falling drops and at the completion of sterilization they should be spread more or less evenly over the cloth to facilitate drying. Immediately after being sterilized the eggs are dried as rapidly as possible. A portion of the alcohol may be drained away by means of a wad of asbestos wool, sterilized in the Bunsen flame, cooled, and placed under the spoon for a few seconds. Then the cloth is lifted with a pair of forceps, the alcohol is burned away from the spoon, and the cloth is held at a safe distance above the heated spoon until cloth and eggs are fully dry. Fully dried eggs are not only free from alcohol, but when transferred to a liquid they float on the surface where they are more likely to hatch.

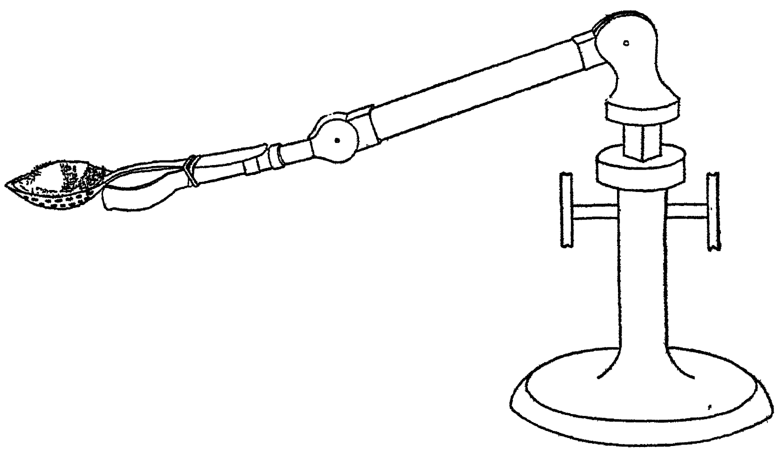

FIG. 1.—Spoon and cloth used in sterilizing eggs of Anopheles

The pieces of cloth are kept in 80 per cent alcohol and may be placed on the spoon while wet, or they may be sterilized by dry heat and kept ready for use in a sterile Petri dish or other receptacle. It is easier to transfer the eggs to the cloth when it is dry, or nearly dry, since they are then less likely to adhere to the platinum loop.

After sterilization, the eggs are taken up in small parcels and transferred to a series of test tubes containing a broth favorable for the growth of bacteria. A fine platinum spatula, moistened in some sterile fluid to make the dry eggs adhere to it, is suitable for transferring the eggs. The test tubes are then incubated or kept at high room temperature for several days, and larvae from those which remain clear are pipetted into cotton-plugged flasks or other larger receptacles containing a sterile medium suitable for the growth of the larvae and for the living food organisms which are introduced with them.

The whole procedure may be varied in many ways. The alcohol may be removed with sterile water before transferring the eggs to

test tubes; or the eggs may be washed into a heap at the close of the sterilization and thereafter simply drained with the asbestos wool. The small amount of alcohol transferred with the eggs does not seem to inhibit their hatching or the growth of the larvae, but a large proportion of the eggs will sink if transferred wet to the test tubes. Denatured alcohol, instead of the 80 per cent ethyl alcohol, gave good results and was used as a routine in some series. Formalin, lysol, chlorine, and other germicides were tried; but, on the whole, the alcohol proved most effective and convenient.

The number of eggs transferred to each test tube necessarily varied; they may have averaged 40 to 50 per tube. The batch obtained at one sterilization was usually distributed among five or six test tubes. Of course, the fewer eggs transferred to each tube the better the chances of obtaining a proportion of sterile cultures, for usually one or more of the test tubes will show contamination. In some cases the preliminary tests for sterility were omitted and the eggs were transferred directly to the larger receptacles. In such cases these had to be subsequently tested for contamination.

The medium used for testing the sterility of the eggs was, as a rule, beef broth made according to the usual formula for bacterial cultures but with the omission of salt. Most lots contained 1 per cent peptone, and to some was added 1 per cent or one-half of 1 per cent glucose. A drop or two of raw or inactivated serum was added to many tubes to promote bacterial growth. Agar slants, with an abundance of water of condensation, or a very soft agar were occasionally used instead of broth.

Usually on the first or second day after the eggs had been placed in the broth or water of condensation the larvae hatched out and swam freely about at the surface of the liquid. The tubes were often kept a day or two after the larvae had hatched before transfer to the flasks; but it was found that if they were kept too long in the sterile broth the chances for successful growth in the flasks were diminished.

The proportion of tubes remaining sterile after inoculation with eggs varied greatly. Sometimes a whole series of five or six tubes from a batch of eggs would remain clear, while all from another batch would become clouded. It was found that a larger proportion of the eggs were sterilized if the water in which the eggs were to be laid was first autoclaved, or, at least, boiled.

As a routine, anopheline eggs were obtained in abundance by placing over a cup of water, lantern-chimney cages in which gravid female mosquitoes were confined. In some experiments bobinet netting was tied on both the bottom and the top of the cage, the cage placed over a cup of water and the whole autoclaved. Mosquitoes were then introduced into the cage, precautions being taken to include a minimum amount of dust with them. It was found that

the females would lay their eggs through the netting, allowing them to drop a distance of some millimeters onto the water beneath. Eggs were sometimes laid within three hours after the introduction of the mosquitoes into the cage. In one experiment, eggs thus obtained were distributed unsterilized on various tubes of nutrient media. In five out of seven transfers, bacterial growth appeared promptly. In two, transferred to agar, no growth appeared for four or five days, then a *Streptococcus* appeared in one. The other remained sterile. It is possible, of course, that bacteria would have appeared in all the eggs if they had been tested under a great variety of conditions of media and temperature, but it would seem that some of them were nearly, if not quite, sterile when laid.

In routine work, however, it was found most convenient to use alcohol for sterilizing the eggs rather than to depend on a chance natural sterility. The preliminary boiling of the water in which the eggs were to be laid, as well as the sterilization of the cloth and spoon, simply diminished the number of bacteria with which the alcohol had to deal.

The containers into which sterile larvae were placed for subsequent development were usually 250 c. c. or 500 c. c. Erlenmeyer or Florence flasks, or 500 c. c. Mason fruit jars. The fruit jars were fitted with a cover perforated by a large glass tube through which the larvae could be introduced. All containers were plugged with cotton and, together with the culture medium, autoclaved before inoculation with the larvae and food organisms.

A great variety in quantity and kind of culture media was employed in the flasks or jars, the chief aim being to get a medium favorable to both larvae and food organisms. Some of the media employed were as follows: Beef broth in various dilutions, with and without unheated blood or serum; semifluid nutrient agar; rotten algae in water with or without the addition of broth; powdered bodies of adult *Anopheles* in various fluids; milk; ground-up beef brain in water; yeast cultures; rotten wood with pond or river water; etc. Frequently earth, limestone, *Sphagnum* or *Tillandsia* moss, sand, and wood or animal charcoal were added to the medium before sterilization. In some experiments, nutrient substances were dry-sterilized and added after the fluids in the flasks had been sterilized, the object being to test the value of food substances floating on the surface of the water in contact with the larvae.

Among the living food organisms tested were the following: An infusorian, *Colpidium*, isolated from cultures of rotting algae; a motile, unicellular, grass-green alga, possibly *Chlamydomonas* or a related form; and a large and a small variety of *Spirillum*. These organisms were isolated by means of the Barber pipette method (8) and the infusorian and the alga were grown in pure culture, bacteria

free.[1] These organisms were chosen as representative of the protozoa, algae, and bacteria commonly found in the plankton of Anopheles-producing water. The *Spirilla* are especially favorable for these experiments because they grow at the surface of the medium and seem less likely than other bacteria to pollute the medium. I also employed various other species of bacteria and algae and some yeasts and molds.

The results of the cultures appear in Table 1. This table includes only cultures in which were bred out *Anopheles* adults capable of flying after emergence. Cultures in which adults died before complete emergence from the pupa cases are not included. After the emergence of the adults the flasks were tested for contaminants. A group in which such contaminations occurred is included in separate columns of the table, since the results are of interest in showing the possibility of rearing *Anopheles* to maturity in alga-free cultures containing usually only a single kind of bacterium or yeast, in addition to the microorganism originally inoculated.

As shown in Table 1, the *Colpidium* alone, the small *Spirillum* alone, the large *Spirillum* alone, the unicellular alga alone, and various combinations of these proved to be sufficient living food to bring to healthy maturity one or both of two species of *Anopheles*.

The adults which emerged in the cultures were sometimes small, but in most cases they were strong and of normal size. At room temperature they usually died on the second or third day after emergence, although in one case a mosquito, *A. crucians*, lived six days in the container. Among cultures kept in the ice box longevity was, of course, much greater. The growth rate of the mosquitoes, counting the growth period from the night when the eggs were laid to the night of emergence, varied from nine days at high room temperature to several weeks when the mosquitoes were bred in the refrigerator. The largest number emerging in any one flask was 45, all *A. quadrimaculatus*.

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[1] In the case of the *Colpidium*, special tests were devised to prove that the cultures were actually bacteria free, since a few bacteria associated with the infusorian may be so far kept down by it as to fail to show visible colonies on agar or to appear in broth cultures. The special tests were as follows:

1. Cultures were embedded in stiff agar so as to afford conditions unfavorable for the *Colpidium* but favorable for bacterial growth.

2. Hanging drop cultures were made in a soft agar where the growth of the *Colpidium* could be kept under observation.

3. Broth cultures of *Colpidium* were centrifugalized lightly. The infusorians were thrown down, but the supernatant fluid proved to be sterile.

4. Cultures were passed through sterile cotton filters so packed that the broth passed through freely but the infusorians were held back. The filtrate proved to be bacteria free. In none of these tests was it possible to find any organism except the *Colpidium*. The freedom of the alga from bacteria could be easily shown.

TABLE 1.—*Cultures in which healthy imagoes emerged, the food organisms, and the numbers and species of Anopheles*

Food organism	Uncontaminated cultures: Number of cultures	Uncontaminated cultures: Species and number of Anopheles: A. crucians	Uncontaminated cultures: Species and number of Anopheles: A. quadrimaculatus	Contaminated cultures: Number of cultures	Contaminated cultures: Species and number of Anopheles: A. crucians	Contaminated cultures: Species and number of Anopheles: A. quadrimaculatus	Contaminated cultures: Species and number of Anopheles: A. punctipennis
Colpidium only	7	10	13	15	9	21	2
Small *Spirillum* only	1	1					
Large *Spirillum* only	1	2	2				
Unicellular alga only	1		2	1	1		
Colpidium plus unicellular alga	1		2	1		1	
Colpidium plus small *Spirillum*	6		66	4	2	5	2
Colpidium plus both *Spirilla*				2	2		
Colpidium plus yeast				2			6
Colpidium plus a bacillus				1		1	
Total	17	13	85	26	14	28	10

Certain of the tests for contaminants are given in more detail. A relatively large quantity of the culture medium, one-half to 1 cubic centimeter, was pipetted to broth, agar slants, or other suitable medium for bacteria. In case the original culture contained living infusoria, I preferred as a test medium melted nutrient agar, cooled to 40° C., and subsequently sloped in test tubes, since conditions in the depth of the agar offered better opportunities of growth to a chance contaminant, which at the surface of the medium might be overgrown or ingested by the infusoria. In all tests a sample of the liquid transferred was also examined microscopically to detect the presence of any motile contaminant and to determine the numbers and activity of the food organisms originally introduced.

Larvae of various sizes were occasionally tested for contaminants in culture media under both aerobic and anaerobic conditions. In one case an anaerobe was found. The mosquito culture medium was in some flasks tested at different times during the development of the larvae.

In a certain flask inoculated with a pure culture of *Colpidium*, the medium after the emergence of mature *Anopheles* gave no evidence in test cultures or microscopically of the presence of contaminants. The flask still contained large living larvae. Several of these and one adult mosquito were dissected. The guts of the larvae contained particles of the earth originally placed in the flask and sterilized with the medium, but neither larvae nor adult contained any bacteria. The absence of bacteria in these larvae is significant, since the guts of larvae grown under natural conditions are usually swarming with them.

In this culture a further test was made of the medium, a dextrose broth, to determine whether it was still favorable for bacterial growth,

as there remained the possibility that it had been contaminated at an earlier period, and that the contaminants had died out through the exhaustion of the medium. So the flask was purposely contaminated and left at the same temperature as that at which the mosquitoes had developed. Both bacteria and yeasts promptly appeared, showing that the medium had not been exhausted or otherwise made unfavorable for ordinary contaminants.

In this connection it may be of interest to review some of the tests made of the sterility of the eggs after treatment with germicides. Broth tubes containing eggs or young larvae remained clear for many days; in one case a living larva in a test tube of broth plus a small amount of agar showed no contamination after four weeks at room temperature. Alcohol-treated eggs were plated out in agar and compared with untreated batches. The eggs of the treated batch hatched out in the agar but showed no colonies of bacteria, while the controls showed numerous colonies.

One experiment, designed to test both the sterility of young larvae and their behavior on a moist surface, will be described in more detail: A medium consisting of an infusion of chopped beef containing 1½ per cent agar and 1 per cent peptone, pH 7.0, was filled in test tubes, autoclaved and sloped. Each tube of this soft agar then received one or two drops of human serum inactivated at 56° C. Eggs of *A. quadrimaculatus* were treated three minutes with 80 per cent ethyl alcohol and dried thoroughly on the cloth and spoon, according to the usual routine method. These were placed on the surface of the agar in six test tubes at distances varying from 1 to 3 centimeters above the water of condensation. On an average about 65 eggs were placed in each tube. The tubes were placed upright in a rack. Approximately 6 per cent of the eggs hatched. In nearly every case the larvae started directly downwards toward the water of condensation, as shown by the tiny trails which they left on the surface of the agar. One or two of the larvae started upwards, then turned down.

To this series were added two controls in which the eggs were placed directly on the water of condensation. In these controls about 17 per cent of the eggs hatched.

One of the eight tubes early showed bacterial contamination. The other seven were closed, to protect them from evaporation, and kept for two months, part of the time at room temperature and part of the time in the incubator. At the end of that period no macroscopical evidence of contamination could be seen in any.

The numbers and variety of microorganisms are infinite, however; and, as stated by Atkin and Bacot, we can not absolutely exclude the possibility that some microorganism may have appeared in the cultures and subsequently died out. The "sterility" of cultures containing living insects is based on negative evidence, as we can

not test all manner of media and possibilities of growth. So far as ordinary tests for bacteria can show, however, we were dealing with bacteria-free eggs, and these developed to adult mosquitoes in pure cultures of certain food organisms.

The proportion of "successful" cultures, that is, those which produced healthy mosquitoes capable of flying, was not large. Some 45 of such cultures were obtained, including those which became contaminated, hardly one-seventh of the total number of attempts. In many cultures the larvae died when very small. In others they grew rapidly and gave every promise of success, and then died when full-grown or in the pupal stage. Many died during emergence. When a success was scored, a repetition of the experiment under similar conditions would often result in failure.

I made many attempts to devise conditions under which success might be more uniformly obtained. Very promising results were afforded by two series of experiments (lots Nos. 136 and 138), some details of which will be given.

In lot 136 the medium was filamentous algae incubated 3 to 4 days at about 30° C. until well rotted. This material was mixed with tap water and autoclaved in Florence and Erlenmeyer flasks of 250 and 500 cubic centimeters capacity, each containing about 200 cubic centimeters of the medium. Eggs of *A. quadrimaculatus* were sterilized with alcohol in the usual manner and placed in tubes of nutrient medium. The food organisms were added to the broth tubes the day after the eggs were put in. They were put in thus early in order to furnish the young larvae with food as soon as they had hatched.

In most of the flasks no broth was added to the infusion of rotten algae, except such amounts as were introduced with the test tube cultures of larvae. This addition consisted of 10 to 15 cubic centimeters per flask of beef broth media of various composition, the exact nature of which did not seem to be essential. One of the most successful cultures of the series received about 15 cubic centimeters of a broth containing one-half of 1 per cent peptone, one-tenth of 1 per cent meat extract, and one-tenth of 1 per cent blood albumen.

As food organisms, four flasks received *Colpidium* plus a small *Spirillum*, and 2 flasks, *Colpidium* alone. All cultures were placed in a refrigerator, the temperature of which varied from about 13° C. to 20° C.; the higher temperature occurred only occasionally when there was insufficient ice in the container. Nearly all received an abundance of young larvae.

The results of these cultures follow:

Of four flasks inoculated with *Colpidium*, plus the small *Spirillum*, mosquitoes came to maturity in three, the number emerging being, respectively, 20, 26, and 1 per flask. The single unsuccessful culture

had received but few larvae when inoculated. Of the two receiving *Colpidium* alone, one produced six mosquitoes, the other failed. So in the series of six flasks, four were successful.

Cultures were made of the contents of the four successful cultures after the maturity of the mosquitoes and no evidence of contamination was found. In all of them the food organisms were still abundant and apparently thrifty.

This experiment was repeated (lot No. 138). The conditions were essentially similar, except in the following respects: Instead of filamentous algae, which were not available at that season, zoogloea-forming algae, in part blue-green, were used. One-pint Mason jars were used in place of the flasks, and the cultures were kept at low room temperature, 17°–26° C. Of four cultures which had received as food organisms *Colpidium* plus a small *Spirillum*, three produced healthy mosquitoes, the numbers being, 8, 14, and 26, respectively, per flask. Of four which received *Colpidium* only, three were successful, the numbers of mosquitoes produced being 1, 1, and 45 per flask.

All containers of lot 138 received ½ to 1 cubic centimeter of human serum after inoculation. In lot 136, a part of the flasks received one or two drops of serum, the others, including 2 of the successful ones, received none.

In sum, the results of these rotten-algae-broth cultures were 10 successful out of 14 attempts, a much higher proportion than the average and a much larger average output of *Anopheles* per flask.

Another particularly successful culture consisted of tap water containing a small amount of the ground-up and sterilized bodies of adult *Anopheles*, a small quantity of broth and a mass of *Tillandsia* moss, all sterilized in the autoclave. Thirteen healthy *A. quadrimaculatus* emerged in this culture. The food organisms were *Colpidium* plus a small *Spirillum*, and the culture was kept at low room temperature.

The factors common to these three series were a comparatively "thin" culture medium containing masses of dead algae or moss, food organisms consisting of an infusorian or of the infusorian plus *Spirilla*, and cultivation at relatively low temperatures.

Certain of the factors which determined the success or failure of our cultures will be discussed severally, in the hope that such study may help to elucidate some of the problems of the growth of anopheline larvae both under laboratory and natural conditions.

Aeration.—The containers in which our cultures were kept differed from ordinary laboratory receptacles in which mosquitoes are bred only in the fact that they were kept closed. Preliminary cultures on unsterilized food in cotton-plugged flasks showed rapid growth of larvae to mature adults, although not in every case. It is unlikely

that failures were due to a lack of oxygen. In our "pure" cultures there was always a large air space above the culture medium which was automatically changed by the contraction and expansion of the air with the changes in room temperature. A successful culture in which 13 adults emerged was closed by a cork perforated only by a small tube plugged with cotton. Larvae survived 12 days and grew to nearly half size in a flask sealed with paraffin. Artificial aeration of cultures gave little indication of improvement in the growth of larvae. Larvae died at various stages of growth, although in cultures abundantly supplied with living algae and kept in the light. Gases formed by bacteria and partially confined in the receptacles may have inhibited the growth of larvae in some cultures, but it seemed unlikely that this factor was a common cause of failure. Many successful emergences were obtained in contaminated cultures and many failures in those provided with pure cultures of algae or infusoria.

The size of the containers seemed ample. In several cases healthy adults, both *A. crucians* and *A. quadrimaculatus*, were obtained in cotton-plugged test tubes of the ordinary size. But few emergences occurred in test tubes, however, and larger receptacles were commonly employed.

Oxygen was apparently necessary for the hatching of the eggs. When a batch of eggs was purposely made to sink to the bottom of a test tube containing broth a smaller proportion hatched out than in batches floating on the surface. Eggs placed under anaerobic conditions—in glucose broth boiled under a layer of vaseline—failed to hatch.

The temperature at which the cultures were kept had much to do with the proportion of successes obtained. High room temperatures, 80° or 85° F. in the daytime, favored the rapid development of the mosquitoes and a number of successful cultures were obtained under such conditions. Usually, however, mortality was high at such temperatures and the chance of success much greater when cultures were kept at low room temperatures or in a refrigerator at 15° to 20° C. The effect of the products of decomposition in the media seemed to be greater at the higher temperatures.

Light, as might be expected, was not an essential factor when larvae were fed on infusoria, bacteria, or other organisms lacking chlorophyll. Larvae of *A. quadrimaculatus* were brought to maturity in cultures kept in a closed refrigerator.

The hydrogen-ion concentration of cultures was usually adjusted when the media were prepared and often retested at the close of an experiment. Except in some special experiments, it was kept within the range of pH 6.5 to pH 8.5, concentrations at which the anopheline larvae of our species are known to thrive under natural conditions. In one experiment the medium, consisting of rotten algae in dilute

broth, was divided into two lots—one of pH 6.4, the other of pH 8.6. In cultures from both lots, healthy adults of *A. quadrimaculatus* were obtained, the food organism consisting of *Colpidium* alone, or, in some cases, of *Colpidium* plus a small *Spirillum*. In one culture the hydrogen-ion concentration rose from pH 6.4 to pH 6.8 during the development of the mosquitoes to adults; in two others it rose from pH 6.4 to pH 8.2.

In another experiment, larvae hatched in a broth of pH 4.4 and survived in it for 25 days at room temperature. The medium was unfavorable to the food organisms and the larvæ grew but little. This test and similar tests indicated that a concentration as low as pH 5.0 was not *per se* harmful to larvæ so long as the food supply and other conditions were favorable. Within the range of pH 6.5 to pH 8.5, at all events, I could not detect any measurable effect of the hydrogen-ion concentration on the growth and development of the larvae.

The salts necessary for larvae growth must have been present, since, in many cultures, earth, sand, or mud from breeding places was supplied. In one culture, *A. crucians* grew to maturity in physiological salt solution.

Inherent differences in the vitality of larvae undoubtedly played an important part. Some batches of larvae seemed much stronger than others; and when a number of living larvae were inoculated into a culture, some individuals often rapidly outstripped the others. There was no evidence that the stronger ones commonly fed on their dead comrades. Such differences in vitality in larvae of the same age are often seen in open laboratory cultures and doubtless exist under natural conditions. Moreover, both in laboratory cultures and in nature but a small percentage of eggs usually reach the adult stage. In my cultures the larger the number of larvae transferred to a flask, the better the chances of success. So I frequently transferred the larvae of several test tubes to one flask.

The food supply of the larvae proved to be a most important factor in the success or failure of my cultures. On the theory that the accessibility of food might be of importance to surface-feeding larvae, I employed many devices for keeping the food tested at the surface of the liquid in the flask. It was doubtful whether any of these devices were of advantage in the case of nonliving food substances. The use of the surface-growing *Spirilla*, infusoria, or other living food was probably of advantage. A pure culture of the alga *Scenedesmus*, which sinks to the bottom of the medium, proved to be less suitable as food than motile surface-growing algae.

Our cultures showed strikingly that dead food is far less suitable for larval growth than living. Cultures containing living infusoria, algae, and *Spirilla* were compared with those supplied with the same

microorganisms killed at low temperatures (55° C.); the growth of larvae was consistently better in the presence of the living food. Larvae would often survive long on dead food, just as they did in sterile broth, but they almost invariably failed to grow to any extent. In one case a larva survived one month on dead *Colpidium* and at the close of this period was but little larger than it was when newly hatched. Larvae in contaminated cultures usually developed further than those in sterile broth, where growth was always inconsiderable.

In cultures made on autoclaved foods of various kinds the mosquitoes never produced adults. In one culture, autoclaved, consisting of a shallow layer of broth containing an abundance of powdered bodies of adult *Anopheles*, there was considerable growth of larvae, some reaching nearly full growth. Growth was slow; nearly a month was required to reach the stage of half-grown larvae. Over a month before the death of the larvae, samples were pipetted out of the flask and cultured for bacteria, and such sampling was continued at different times almost up to the time of the death of the larvae. Transfers were made to broth and agar, and to cultures under anaerobic conditions, and the samples were examined microscopically for bacteria. In no sample was there evidence of bacterial or other contamination. One can not exclude the possibility that the larvae were favored by the transient growth of a contaminant, but it seemed most probable that the larvae grew on dead food. Several attempts were made to repeat this experiment, but all failed to give any considerable growth of larvae.

The addition of sterile, unheated foods, such as white and yolk of eggs, plant tissues containing chlorophyll, pulp of fruits, or red blood corpuscles did not measurably promote the growth of larvae. In one experiment, mosquitoes were brought to maturity on a culture of living yeast plus *Colpidium*. A vigorous growth of yeast alone in a rich medium was unfavorable to larval growth.

In sum, our experiments agree with those of Atkin and Bacot (7), who found that the larvae of *Aëdes aegypti* only exceptionally grow on dead foods, and that living bacteria are a much more suitable food than dead. Metz (2) reported that dead foods are suitable for the growth of *Anopheles* larvae; but in his experiments unsterilized larvae were transferred directly to the food substances, boiled algae and other vegetable matter, and the cultures were kept at August temperatures, so that the possibility of the presence of living bacteria in sufficient numbers to promote growth could not be excluded. Our experiments indicate that dead food is much less suitable than living for the growth of *Anopheles* larvae, but do not exclude the possibility that dead foods may sometimes be a sufficient or an accessory source of nutriment. It is not within the scope of this paper

to go into theoretical considerations regarding necessary or accessory factors in the food of insect larvae. Glaser (9) has recently summarized the literature on this subject.

The failure of many of our cultures to reach maturity, however, could not be attributed to the lack of living food. Living microorganisms often persisted long after the death of the larvae. The possible exhaustion of the food of the microorganisms was provided for in some cultures by adding broth from time to time after the introduction of the larvae. Earth, charcoal, sand, and clay were added to the cultures in the hope that, becoming impregnated with the nutrient fluids, they might gradually add to the food supply of the microorganisms. In various sorts of cultures, living algae and infusoria remained viable for long periods, sometimes for many weeks. Further, lack of food would hardly account for the sudden death of larvae which had grown rapidly until just before pupation. Larvae insufficiently nourished may fail to grow but often survive many days.

Excretory products.—Roubaud (10) has suggested that the urinary excretory products of larvae may inhibit their growth, and this factor may be alleged as important in the death of our mature larvae. But *Anopheles* can be bred in a tea cup or other small receptacle containing but a small amount of liquid, and they will develop in nature in the hoof tracks of animals. In our cultures, considerable numbers of anopheline adults were sometimes obtained in a flask (in one case 45 were obtained in a 1-pint Mason jar). Often larvae would die when only a few were present in a relatively large amount of liquid, and in some cases they reached maturity in a test tube. So it would seem that excretory products of larvae, unless a somewhat varying and transient factor, could hardly have been of much influence.

The products of decomposition of the food organisms were certainly deleterious to larvae in cultures containing bacteria growing in a comparatively rich broth. A very abundant growth of *Colpidium* on a rich substratum also seemed to be unfavorable to them. But in many cultures larvae failed to develop in very thin media, sufficiently rich, however, to support the food organism, and failures were not unknown in pure cultures of algae. Some cultures in which the larvae had died out were reinoculated with new larvae without resterilization, and the larvae reached maturity. In such cases there did not appear to be an accumulation of products harmful to larvae, and when such products of decomposition came into play they must have been of a transitory nature. In many cultures, earth or charcoal was added in the hope that it might modify the medium in which the larvae grew. Such cultures seemed to give a higher proportion of successes than those composed of liquid alone, but not notably higher than those containing masses of sterilized algae or of moss.

In sum, the conditions which gave the larger proportion of successes in "pure" cultures of anopheline mosquitoes were the following: The presence of living food, the use of eggs or young larvae of sufficient initial vitality, and the absence of an excess of certain products of decomposition, the formation of which was promoted by higher temperatures. The mortality observed in many experiments, especially that in pure cultures of algae, could hardly have been due to an excess in quantity of products of decomposition. Some of the fouler cultures, judged by appearances, odor, and the numbers of bacteria, were successful; while others, apparently sweet, failed. It is probable that the quality, as well as the quantity, of products of decomposition were of weight, and that the presence of such deleterious substances was often transient. In experiments such as these, we deal with many factors difficult to evaluate; but it would seem that success depends much on the maintenance of a proper balance between a sufficient supply of living food and freedom from certain products of decomposition. In practice, the use of infusoria, alone or combined with *Spirilla*, of a substratum relatively poor in organic substances, and of low temperatures, gave the largest proportion of successes in these experiments.

A few cultures were made with the eggs of culicines. The eggs were sterilized and tested in the same way as were those of *Anopheles*, except that when eggs were formed into boats they were dissected apart before applying the alcohol. Eggs of *Aëdes aegypti* hatched out clear in broth. In one culture they were brought to mature imagoes in bacteria alone, and in another a culture of *Colpidium* alone. In a boat-forming species, probably *C. quinquefasciatus*, eggs were apparently sterilized, although a smaller proportion of them came through clear than in the case of *Anopheles* eggs. This *Culex* was brought to maturity in a culture of mixed bacteria. As mentioned by Atkin and Bacot, culicines are voracious for bacteria and quite capable of clearing up a clouded culture so that such cultures may, for a time, simulate sterility.

There was no indication in any of our cultures of bacteria pathogenic to *Anopheles* larvae.

An observation on the colors of larvae is worth mentioning. In several instances both green and dark colored *Anopheles* larvae appeared in alga-free cultures. Here, of course, the formation of the green color was quite independent of the presence of green food.

In order to correlate our laboratory findings with the larval food found in nature, I made a series of observations on the plankton of Anopheles-producing waters in the rice fields of Louisiana and Arkansas and in various pools and streams in Mississippi. Purdy (3) made a thorough study of the plankton occurring on the surface and in the depths of the water of rice fields in California. My observa-

tions were limited to such small nonfilamentous organisms as are found on the very surface of the water, and the idea was merely to determine the most common organisms probably suitable for anopheline food in nature. Some 40 observations were made and a great variety of waters examined—those in the sun and in the shade, and those with abundant and with scanty filamentous algae and other microscopic material.

The technique was simple. By means of a wire loop, such as that used in taking up mosquito eggs, samples were looped from the surface of the water in the immediate vicinity of *Anopheles* larvae. The samples were placed on a slide and examined immediately under the lower powers of the compound microscope. In some cases samples were subsequently dried, stained, and examined under the oil immersion. Data as to water temperatures and the hydrogen-ion concentration were recorded. Dippings were made to determine the numbers of anopheline larvae at the place where the samples were taken.

The results may be briefly summarized as follows: Aside from bacteria, which were universal, unicellular algae constituted the predominant surface organism. Colorless protozoa, usually infusoria, were next in order. Diatoms, desmids, *Euglena*, rotifers, and small crustacea were often abundant. The organisms which we found suitable as food in our laboratory cultures were, then, plentiful in nature.

DISCUSSION

Laboratory cultures of anopheline larvae have proved of value in the explanation of some problems in anopheline production in nature, especially those having to do with the effect of physical agents, of food, and of products of decomposition. In regard to the last-named factor, the behavior of the larvae in my cultures has shown some similarity to that of larvae in natural breeding places. It is well known that a breeding place may become too foul for the development of *Anopheles* larvae, but the absence of these larvae in certain permanent waters, apparently fresh and favorable for them, has not been clearly explained. It is possible that here, as in our cultures, the quality of the products of vegetable decomposition may be of weight, although such products may be too small in quantity to be easily recognized. These substances when they occur in nature may act directly on mosquito larvae or may simply deter female mosquitoes in their search for suitable places for laying eggs.

Ordinary laboratory cultures suffice for many experiments. In our "pure" cultures the food factor is kept under more precise control.

The results obtained in our cultures have a bearing on certain antimosquito measures. It has been proposed that the use of some algicide, as copper sulphate, might render waters unsuitable for anopheline larvae, a measure based on the assumption that algae form the bulk of larval food. Since, as shown by our experiments, infusorians alone or bacteria alone may constitute a sufficient source of food, an algicide would be effective only to the degree to which it might reduce the supply of available food. Decomposing algae afford a good pabulum for bacteria and infusoria, and their removal might act indirectly in diminishing larval food; but it is doubtful whether an algicide, even if wholly effective in killing all algae, could give entirely satisfactory results, since much food available for bacteria and infusoria would remain. The exposure of waters to sunlight usually brings about an increase in anopheline production, but with the increase in algae there is usually an increase in all sorts of vegetation, the decay of which augments the supply of colorless microorganisms. In demonstrating the adaptability of *Anopheles* larvae to a variety of foods, our experiments would tend to bring out more clearly the limitations of measures designed to starve out larvae by a chemical attack on their foods. The mechanical removal of débris from water is, of course, an effective measure; in this we remove not only sources of food, but the protection of the larvae as well.

SUMMARY

1. Algae alone, bacteria alone, or infusoria alone may constitute a sufficient source of food for *Anopheles* larvae.

2. Dead organic material, in cultures at least, is far less suitable than living organic material as a source of food.

3. Antilarval measures based on the destruction of available food must take into consideration the adaptability of larvae to various food organisms.

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CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED APRIL 15, 1927, BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT [1]

Plague.—Plague incidence in most of the important endemic centers was relatively low during the months of February and March, so far as reports to the Health Section of the League of Nations' Secretariat, published in the Monthly Epidemiological Report for April, had been received for this period. Comment in the report calls attention to the exceptionally favorable situation in both India and Java.

With regard to plague in India, the comment is as follows:

> In Northern India, it is in February and March that the sharp rise of the plague incidence takes place which determines the situation for the whole plague year. The greatest interest attaches therefore to the fact that plague was much less prevalent in February than during the corresponding month of any year since the disease spread throughout the Indian peninsula during the closing years of last century. During the present century the most favourable year on record has hitherto been 1922, when India's plague death toll amounted to 4,667 for the second and third weeks of February; during the corresponding period of the current year only 2,632 deaths were ascribed to plague.
>
> The only important plague centre in Northern India in February last was an area including the eastern districts of the United Provinces and the western districts of Bihar and situated in the plain of the Middle Ganges, where it is joined by the Gogra, the Gandak, and the Son.

TABLE 1.—*Deaths from plague in the Provinces of India*

Province	1922, Feb. 5-18	1923, Feb. 4-17	1924, Feb. 10-23	1925, Feb. 8-21	1926, Feb. 7-20	1927, Feb. 6-19
North-West Frontier Province	0	0	100	2	1	0
Punjab	165	488	4,604	1,790	2,780	284
Delhi	0	107	186	16	1	0
United Provinces	1,331	4,774	3,037	2,851	2,106	920
Bihar and Orissa	838	2,293	1,012	603	443	413
Bengal	1	1	1	0	0	0
Assam	0	0	0	0	0	0
Central Provinces	300	809	1,330	539	455	403
Madras Presidency	768	645	280	239	181	87
Hyderabad State	82	634	209	293	700	33
Mysore	178	131	74	27	280	29
Bombay Presidency	203	732	636	361	649	107
Burma	719	837	771	267	354	236
Other Indian States	22	212	674	277	834	140
Total	4,667	11,663	12,404	7,274	8,784	2,632

[1] From the Office of Statistical Investigations, United States Public Health Service.

"The January plague returns for Java are the most favorable since 1921," states the Report. "The incidence may now be expected to decrease until July, which is the month of seasonal minimum."

TABLE 2.—*Deaths from plague in the Provinces of Java*

Province	Four-week period ended—			
	Jan. 28, 1924	Jan. 28, 1925	Jan. 30, 1926	Jan. 29, 1927
Preanger	0	0	1	4
Cheribon	31	86	223	103
Pekalongan	55	197	195	114
Semarang	77	249	15	2
Banjumas	0	397	269	49
Kedu	371	411	570	303
Jokjakarta	40	19	29	19
Surakarta	341	732	187	91
Surabaya	11	9	4	4
Passoeran	0	9	0	0
Kediri	0	6	16	1
Total	926	2,115	1,509	690

At Colombo, Ceylon, there were 20 cases of plague reported in the five weeks ended April 2, as compared with two cases in the corresponding period of 1926.

In Northern Africa plague conditions were also favorable. No case of plague was reported in Algeria during the month of March. In Egypt only two cases were reported—one at Port Said in the week ended March 19 and one at Alexandria in the week ended April 2. In Tunisia there were 34 cases reported in the district of Sfax during March, but no cases were reported from any other district.

The plague incidence in Madagascar continued high in the first half of March, when 141 cases were reported as compared with 363 in the preceding month. In Uganda the number of deaths from plague decreased during January; 84 deaths were reported in the four weeks ended January 22 as compared with 166 in the preceding four weeks.

In Guayaquil, Ecuador, an increase in plague cases occurred at the beginning of the current year, and 5, 12, and 26 cases, respectively, were reported for the first three half-month periods. The number of infected rats found was less than in the preceding two years.

In Peru only 79 cases were reported during January and February of 1927 as compared with 290 cases in the corresponding months of 1926.

Cholera.—"Cholera was more prevalent in March than in February in Calcutta and Bangkok, but less prevalent at Rangoon and apparently disappearing at Madras," according to the Report. "Ports farther east and north reported no cholera."

In India the seasonal increase in cholera begins usually in March, and the incidence in February is not very significant. The number

of deaths in the different Provinces during the two weeks from February 6 to 19 is shown in Table IV, as compared with the corresponding period of previous years. As usual, Bengal and Madras Presidency were the main centers of infection, but in Assam and Burma the deaths were unusually numerous for the time of year.

TABLE 3.—*Cholera deaths reported in the Provinces of India*

Province	1924, Feb. 10-23	1925, Feb. 8-21	1926, Feb. 7-20	1927, Feb. 6-19
North-West Frontier	0	0	0	0
Kashmir	0	6	0	0
Punjab and Delhi	0	0	0	0
United Provinces	27	1	8	8
Bihar and Orissa	88	99	371	103
Bengal	621	537	1,233	792
Assam	55	31	53	288
Central Provinces	4	1	230	10
Madras Presidency	421	1,412	1,340	1,010
Bombay Presidency	0	0	0	1
Burma	16	47	12	132
Other Indian States	0	0	21	0
Total	1,232	2,164	3,268	2,344

Typhus fever.—An increase in typhus fever in Poland occurred toward the end of February, when 258 cases were reported in the two weeks ended March 5 as against 154 cases in the preceding two weeks; but the incidence in January and February was lower than in the preceding year.

Both Algeria and Morocco have reported a somewhat higher incidence of typhus fever than for the first quarter of 1926. In Algeria, cases in the first three months of the current year numbered 280, as against 89 in the same period of 1926; and in Morocco the cases for the first three months numbered 460 as against 270 in 1926. In Tunis there were 170 cases reported during the first quarter of the year, which was approximately the same number as was reported during the preceding year. In Egypt a marked decline in typhus fever is noted; there were 69 cases in the first 9 weeks of 1927 as compared with 205 during the corresponding period of 1926.

Smallpox.—Smallpox prevalence continued low in practically all parts of the European Continent. The incidence in northern England during March declined only very slightly, 1,650 cases being reported in the four weeks ended April 2 as compared with 1,792 in the preceding four weeks.

In India, smallpox was very prevalent, especially in Bihar and Orissa, and Bengal, where the disease was seriously epidemic. "The outbreak seems to have reached its maximum at Calcutta during the week ended March 26, when there were 300 deaths from smallpox in this town. During the first quarter of 1927 there have been 1,904 deaths from smallpox at Calcutta. Smallpox is now increasing also at Bombay and Rangoon."

Other places in the Far East have shown a decline in smallpox. In Siam there were 50 cases during the first eight weeks of the year as compared with 233 during the corresponding period of the preceding year. In Java and Madura, 14 cases were reported during the four weeks ended January 29, as against 113 and 387 cases, respectively, during the corresponding period of the two preceding years. Only 2 smallpox cases were reported in the Philippine Islands in 1926, and none since March of that year. The report states:

The smallpox incidence in the United States differs but little from last year; 3,914 cases were reported during the four weeks ended March 19, as against 4,234 cases during the preceding four weeks and 3,823 cases during the corresponding period of 1926.

Influenza.—The report states:

The influenza epidemic came to an end in March practically everywhere in Europe. In 105 towns of England and Wales, 155 deaths were attributed to influenza during the week ended February 26. In these towns, 7,472 deaths were ascribed to influenza during the first quarter of the year. Scotland was only slightly affected by the epidemic.

In Germany the peak was reached during the first week of February, when 485 deaths from influenza were reported in 46 towns; the corresponding figure for the week ended March 19 was 95.

In Czechoslovakia 143 deaths were attributed to influenza in January and 1,020 in February; 253,662 cases were reported during the two months.

Deaths from influenza in Bulgaria numbered 3,001 during the six weeks ended March 12. In the Kingdom of the Serbs, Croats, and Slovenes, 1,708 deaths were attributed to this disease up to March 21.

Measles.—The report notes:

Measles has been less prevalent than usual during the past winter in most countries for which information is available.

Recent statistics for the Union of Socialist Soviet Republics also shows a lower incidence of measles, which, however, still causes a very considerable mortality. In Leningrad there were 473 deaths from measles in 1926 and 664 deaths in 1925, which is more than the corresponding number reported in 1926 in 46 German towns, which have a population ten times greater than that of Leningrad.

Malaria.—Statistics of malaria in the Union of Socialist Soviet Republics during 1926 are still incomplete, but the figures published in the Epidemiological Report indicate a much lower incidence than in either of the preceding two years. The improvement was most marked in the spring and early summer months. In the Ukraine, where the returns for the whole year are most nearly complete, the cases were as numerous in October, November, and December as in the preceding years. This continued high incidence in the late summer and autumn is particularly interesting, because the more severe tropical forms prevail then and the benign tertian type is most prevalent in the spring.

Tuberculosis.—A continued decline in tuberculosis in 1926 was clearly marked in most European towns. In Table 4, the per cent

decrease, or increase, in 1926 as compared with 1925 is shown for a large number of towns in Europe and a few American towns.

TABLE 4.—*Mortality from tuberculosis (all forms) in various cities in 1925 and 1926*

City	Population in thousands, 1926	Deaths, 1925	Death rate per 100,000, 1925	Deaths, 1926	Death rate per 100,000, 1926	Increase or decrease,[1] per cent
EUROPE						
Lille	202	506	252	397	197	−21.5
Budapest	961	2,798	291	2,237	233	−20.1
Oslo	256	431	167	356	139	−17.4
Dresden	624	759	123	628	101	−17.3
Cologne	711	883	121	730	103	−17.3
Lyons	562	1,465	261	1,218	217	−16.9
Breslau	561	729	131	614	109	−15.8
Edinburgh	427	566	133	478	112	−15.5
Berlin	4,110	4,867	121	4,154	101	−14.6
Dublin	419	814	185	697	166	−14.4
Hamburg	1,111	1,231	114	1,066	96	−13.6
Tallin	127	348	274	306	241	−12.1
Munich	685	800	117	704	103	−12.0
Glasgow	1,051	1,413	134	1,294	123	−8.4
London	4,602	4,932	107	4,554	99	−7.7
Trieste	249	700	281	667	268	−4.7
30 Swiss cities[2]	1,177	1,458	125	1,399	119	−4.0
Belfast	415	752	172	724	174	−3.7
Copenhagen	587	634	108	612	104	−3.5
Prague	725	1,244	174	1,204	166	−3.2
The Hague	403	341	87	323	80	−2.3
Paris	2,906	8,134	280	8,013	276	−1.5
Stockholm	443	675	154	666	150	−1.3
Amsterdam	714	693	97	686	96	−1.0
Rotterdam	556	602	110	599	108	−0.5
Venice	201	416	207	416	207	0.0
Milan	857	1,376	191	1,380	161	+0.3
Leningrad	1,614	3,078	223	3,090	191	+0.4
Genoa	320	734	219	748	234	+1.9
Barcelona	764	1,366	185	1,394	182	+2.0
Madrid	783	1,983	253	2,102	268	+6.0
Bologne	221	378	169	410	186	+8.4
Cracow	187	432	200	474	253	+9.7
Sofia[3]	213	646	419	743	348	−15.0
AMERICA						
St. Louis	830	615	75	468	56	−23.9
San Francisco	567	645	116	485	86	−15.2
New Orleans	414	762	184	664	158	−12.9
Sao Paulo	790	911	107	904	114	−0.8
Boston	782	786	101	790	101	+0.5
Chicago	3,048	2,492	83	2,528	83	+1.4
New York[3]	5,873	5,047	84	4,863	83	−3.6
Montevideo[3]	423	1,057	272	1,063	251	+0.6

[1] Per cents are based on increase or decrease in number of deaths.
[2] In 1925, 26 cities only.
[3] Pulmonary only.

The decrease in tuberculosis mortality in 46 German towns since 1923 has been remarkable. The rate in 1923 was 170 per 100,000 population, whereas, following a consistent sharp drop in each year, the rate in 1926 was 99 per 100,000.

ITALIAN SCHOOL OF MALARIOLOGY OPENS JUNE 15, 1927

Official announcement has been made that courses in the Advanced School of Malariology which the Italian Government has opened in Rome will begin June 15, 1927. A brief outline of the purpose of this school and the scope of instruction was published in Public Health Reports for April 8, 1927.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Quarantine affecting herd of cattle not tested for tuberculosis upheld.—(New York Supreme Court; People *v.* Teuscher, 221 N. Y. S. 20; decided February 21, 1927.) Section 76 of the farms and markets law provided as follows:

> Whenever 90 per centum of the herds of cattle or whenever 90 per centum of the total number of cattle in any town have been subjected to the tuberculin test for the purpose of ridding such herds of the disease known as tuberculosis, and the owner of any untested herd in such town refuses or neglects to have his herd tuberculin tested, then the commissioner may order the premises or farm on which such untested herd is harbored to be put in quarantine, so that no domestic animal shall be removed from or brought to the premises quarantined, and so that no products of the domestic animals on the premises so quarantined shall be removed from the said premises.

Ninety per cent of the herds of cattle in the township where the defendant conducted his farm and maintained a herd of cattle had been tuberculin tested, but the defendant refused to have his herd tested. Upon such refusal, the commissioner of farms and markets issued a quarantine order against the defendant's herd and premises, which order, in substance, provided that no bovine animal should be removed from or brought to the said premises and that no products of the bovine animals on the said premises should be removed therefrom. For several months the requirements of the quarantine were conformed to, and then on two separate occasions the defendant, in violation of the order, transported milk, conceded to be a product of his herd, from his farm to certain milk stations. In an action against the defendant for the recovery of a penalty and for an injunction, the holding of the court was adverse to the defendant. It was contended on defendant's behalf that the farms and markets law, in so far as it related to the matters at issue, was unconstitutional, but the court was "of the opinion that the statute is, in all respects, constitutional, and that it is in no way an unreasonable or unwarranted exercise of the police power upon the part of the legislature of this State."

Harrison Narcotic Drug Act upheld.—(United States Supreme Court; Alston *v.* United States; decided May 16, 1927.) An amendment to section 1 of the Harrison Narcotic Act imposed a stamp tax on certain narcotic drugs, and made it "unlawful for any person to purchase, sell, dispense, or distribute any of the aforesaid drugs except in the original stamped package or from the original stamped package." Section 9 of the act, providing penalties for its violation, remained as originally enacted. A prosecution was brought charging a violation of section 1 of the Harrison Act by the purchase of morphine and cocaine from unstamped packages. The defendant pleaded guilty and was sentenced to the penitentiary. The case

was taken to the circuit court of appeals, eighth circuit, on a writ of error, which court asked the Supreme Court's instruction upon certain questions. The latter court then required the entire record to be sent up for final determination of the whole matter. The following quotation from the Supreme Court's opinion shows the defendant's contentions and the holding in the case:

> The judgment of the trial court is assailed upon two grounds: That Congress has failed to prescribe any punishment for the purchase of drugs from unstamped packages, forbidden by amended section 1. And, that the entire act, as amended, is invalid because Congress has undertaken thereby to regulate matters beyond its powers and within exclusive control of the States.
>
> Section 9, above quoted, obviously applies to the requirements of the amended act as well as to those found in the original. The first objection has no merit.
>
> The present cause arises under those provisions of section 1 which impose a stamp tax on certain drugs and declare it unlawful to purchase or sell them except in or from original stamped packages. These provisions are clearly within the power of Congress to lay taxes and have no necessary connection with any requirement of the act which may be subject to reasonable disputation. They do not absolutely prohibit buying or selling; have produced substantial revenue; contain nothing to indicate that by colorable use of taxation Congress is attempting to invade the reserved powers of the States. The impositions are not penalties.
>
> The judgment of the trial court must be affirmed.

PUBLIC HEALTH ENGINEERING ABSTRACTS

The Incidence and Intensity of Hookworm Infestation in the Various Soil Provinces of Tennessee. E. R. Richard and J. A. Kerr. *Journal of Preventive Medicine*, vol. 1, No. 2. November, 1926, pp. 185–203. (Abstract by Norman R. Stoll.)

In surveys previously made in Tennessee (1910–1914) with the plain smear method of diagnosis, hookworm was shown to be prevalent in all parts of the State, certain counties showing a much higher incidence than others. This article summarizes the results of a survey begun in November, 1925, in which incidence was determined by the Caldwell modification of the Willis floatation, and egg counts were made by the antiformin-sugar method of Caldwell and Caldwell. Following the plan of Smillie and Augustine, in Alabama, the State was divided according to soil provinces. Ten provinces were determined, and in each of these it was attempted to examine feces from at least 100 white rural school children of the ages 6 to 16. The highest incidence in any soil province was 76.8 per cent, in the Cumberland Plateau, comprising about 10 per cent of the total area of the State. The next highest incidence, 69.0 per cent, was found in the Unaka Mountain Range, a smaller area. The latter region is a narrow strip following the eastern boundary of the State; the former a north and south band in east central Tennessee. These are the only two areas that have a distinct hookworm problem, and are also the only areas with a high percentage of very sandy soils. Except for one small contiguous area with an incidence of 33.3 per cent, all the other soil provinces with clay or silt soils predominating showed infection rates of less than 17 per cent. The incidence figures are thus highly correlated with the type of soil, only those soils with a relatively large amount of [illegible] producing appreciable hookworm. A reexamination of the 1910–1914 [illegible] figures show that they may be similarly interpreted.

From the intensity figures, only the Cumberland Plateau and the Unaka Mountain Range revealed heavy infestations, and they were few.

The results of the fecal examinations were correlated with results of experimentally culturing hookworm larvae, using the various soils of the selected "provinces." As it is held that the sanitary habits of the people, the temperature, and the rainfall are such that they affect the dissemination of hookworm about equally, the nature of the top soil is thus the outstanding variable among the factors which influence the incidence and intensity of hookworm infestation in Tennessee.

In regard to other parasites, the incidence of *Ascaris* and *Trichuris*, in general, is parallel with that of hookworm, while that of *Enterobius vermicularis* and *Hymenolepis nana* seems to bear no relation to that of the other three.

Filtration Plant with New Features. Anon. *Contract Record*, vol. 40, No. 37, September 15, 1926, pp. 879–883. (Abstract by Rudolph E. Thompson.)

An illustrated description of the new filtration plant of the Metropolitan Water Board of London, England, at Walton, consisting of a system of double filtration, rapid-sand primary filters, and slow-sand secondary filters. Equipment has been provided for treating the water with chlorine, should this be found necessary. There are 18 rapid sand filters of 1 to 2 m. g. d. capacity when operated at a rate of 100–200 gallons per square foot per hour, and 6 slow-sand filters each five-sixths acre in area. It is expected that the latter will be operated at 3 to 4 times the normal rate for slow sand filters. The rapid sand filters are of two types. One type is equipped with an arrangement which automatically closes the filtered water outlet when the water reaches the correct level for washing after the raw water has been shut off, and which gradually opens the filtered water outlet when washing has been completed. This apparatus and the Module, or rate controller, and the Paterson patented filter underdrain system are described in detail and illustrated.

Of What Significance is the Presence of a Chromogenic Organism Resembling B. Pyocyaneus in a Water Supply. B. A. Adams. *The Medical Officer*, No. 976 (vol. 37, No. 15), April 9, 1927, pp. 167–168. (Abstract by C. T. Butterfield.)

The author describes a *pyocyaneus*-like organism isolated from polluted well water and from river water, and reviews the literature on this organism as found in water. He considers that the occurrence of this organism in water may be comparatively common, but that it will be difficult to isolate it if other bacteria are numerous, as he isolated it readily from very small portions of water tested and found it impossible to isolate it from larger portions of the same sample. The methods given by Thresh and by Mollieux for isolating the organism were found unsatisfactory and a method which was found workable is given.

The author concludes that the organism is practically always associated with typical *B. coli*, that it is readily killed by chlorine, and that while it is not desirable in a drinking water, there is considerable doubt as to its pathogenicity under these conditions.

"Water Dogs" in a City Water Supply. R. A. Polglaze. *Public Works*, vol. 58, No. 3, March, 1927, pp. 97, 98. (Abstract by R. J. Faust.)

For several years the water consumers of an Alabama city of 40,000 population have been finding "water dogs" in the water, later identified as the tiger salamander. These findings were not confined to any definite season. However, they were more prevalent in the spring. The question of "water without dogs" gained such strength that it became a political issue.

The city water supply is obtained from a large spring from which the water is lifted to an open reservoir which supplies the city by gravity. The spring is housed over.

Investigation proved that the adult salamanders, which are from 8 to 12 inches in length, were using the reservoir as a breeding place. Here they laid their eggs, and the tadpoles, after hatching, lived until the following year, at which time they lost their gills and became land animals, returning to the water only to lay their eggs.

In the spring of 1926 the reservoir was thoroughly disinfected and a 56-inch fence, with the bottom 30 inches made of quarter-inch mesh, was placed around it. No further complaints have been reported after one year's service.

Sludge Digestion—Reaction and Control. Gordon M. Fair and C. L. Carlson. *Journal of the Boston Society of Civil Engineers*, vol. 14, No. 2, February, 1927, pp. 82–130. (Abstract by E. C. Sullivan.)

The purpose of this paper, including the discussion of the same by Almon L. Fales, H. W. Clark, Edmund B. Besselievre, and Willem Rudolfs, is to discuss the changes and reactions that take place during the progress of sludge digestion and their apparent relation to digestion activities, and also to show the effect of reaction adjustment by means of certain alkaline substances upon the rate of digestion. The influence of temperature is not considered. The discussion of reaction and its control is based upon experimental studies and is, therefore, subject to the limitations of the experiment which are set forth in the paper. The term "reaction" is used to describe the acidity or alkalinity of the sludge, and is reported quantitatively as hydrogen-ion concentration expressed as pH.

Parts of two series of experiments (Series III and V of the Harvard Studies) are discussed in the paper. Both deal with the digestion at 20° C. of mixtures of fresh sewage solids with well-digested Imhoff sludge. The main purpose of the experiments was to obtain information on the nature of progressive sludge digestion under various conditions of pH control. A secondary object was to determine whether sterilization of the fresh sludge would exert an influence upon the course of digestion.

Data on the experimental technique are given. The fresh sewage solids used in the experiments were obtained from the Brockton, Mass., sewage disposal works. The Imhoff sludge was drawn from the Fitchburg, Mass., tanks. The gas production was chosen as the criterion of the progress of digestion. The sludge mixtures were placed in 4-liter bottles so equipped that the gas given off during digestion could be collected for measurement and analysis. A sketch of the apparatus is given.

The article includes a description of the results and is illustrated with a number of graphs. Normal digestion, or digestion without reaction control, which serves as the standard on the basis of which the pH adjustment is evaluated, is taken up. The results achieved by adjustment with lime, which has frequently been used in sewage treatment as a means of chemical precipitation or as a corrective of Imhoff tank trouble, is described. Likewise, adjustments with marble dust or calcium carbonate, dolomite dust containing calcium and magnesium carbonates, and adjustment with sodium hydroxide and sodium carbonate are discussed. A comparison of the results is given and discussed. Likewise, the nature of sludge digestion, effect of reaction control on the rate of digestion, and the practical application of reaction control to sludge digestion are considered.

The results of the experiments are summarized as follows: (1) The course of pH uncontrolled sludge digestion as measured by rate of gas production, reaction changes, and composition of the gases was fairly constant in nature but varied in time in accordance with the character of the sludge; (2) reaction adjustment was not beneficial unless accomplished by the use of suitable chemicals. Lime, marble, dolomite, and calcium carbonate produced an accelerated digestion. Soda ash and caustic soda retarded the progress of digestion; (3) calcium carbonate yielded the best results. Its ease of application and its self-regulating character

recommend it particularly for use in small treatment works; (4) the period of digestion was reduced by suitable reaction control to one-third the normal period required. The shortest time observed for 90 per cent digestion at 20° C. was six weeks; (5) the quantity of adjusting chemical required in terms of calcium carbonate varied from 100 to 500 pounds per million gallons of sewage; (6) the lower critical pH for methane fermentation was near 6.8, the optimum in the vicinity of 7.2; (7) the yield of methane was about 8 cubic feet per pound of fresh organic matter. For the city of Brockton this would mean an available yield of methane equal to 7,900 cubic feet per million gallons of sewage, or one-third cubic foot per capita per day.

Chlorine Gas in the Technique of Sewage Purification. Dr. H. Bach, chief chemist Emscher Corporation of Essen, Germany. Technisches Gemeindeblatt, vol. 28, 1925, pp. 159–167. (Abstract by J. K. Hoskins.)

Because of the impoverished condition of the country, Germany is forced to forego the construction of complete sewage treatment works; chlorine gas disinfection appears to the author to supply the needs of health protection. A review of the properties and applications of chlorine to this end are presented in some detail.

The complex action of chlorine gas and of hypochlorites upon other substances in aqueous solution is discussed. "Materials in gaseous form are destroyed more rapidly by chlorine than are liquids, and these, in turn, more rapidly than solids." In addition to oxidation of organic matter, reaction products are probably generated by chlorine, which are effective as plant and animal poisons even after the exhaustion of the free chlorine content.

For many reasons given by the author, chlorine gas is to be preferred to hypochlorites for sewage disinfection, and is accordingly coming into more general use. The development of the indirect method of chlorine application (that is, the formation first of chlorine water by solution of measured amounts of gas to water, and then addition of this solution to the water to be treated), both in America and Germany, is outlined. This method is now used exclusively for treatment of municipal sewage by chlorine.

The history of sewage disinfection is briefly sketched. Extensive experiments of the Emscher Corporation have indicated that to produce a disinfection resulting in a 99 per cent reduction of the bacteria (growing on gelatin plates) in concentrated fresh municipal sewage which has not as yet decayed to any appreciable extent, the following additions of chlorine proved necessary: (*a*) For crude, unclarified sewage containing fecal matter, 25 to 30 g. per cubic meter; (*b*) for sewage briefly (one-half hour) clarified by sedimentation, 15 to 20 g. per cubic meter; (*c*) for well-clarified sewage, 10 to 15 g. per cubic meter.

If the sewage is stale, larger amounts of chlorine are required. In all cases a period of reaction is essential, generally from 15 to 30 minutes, depending on concentration, temperature, etc. Offensive odors of stale sewage, usually due to formation of sulphur compounds, may also be eliminated by chlorine treatment.

Chlorination of sewage as a substitute for biological treatment is discussed at length. Delay of decomposition may be obtained by chlorine frequently for a period long enough for the treated sewage to reach sufficiently large bodies of diluting water without the creation of a nuisance. However, "chlorinated sewage can not be considered the equal of effectually biologically purified effluents." Chlorine in combination with biological beds and rapid sewage filters and for clarification of sludge is also discussed.

Smoke and dust. F. Bordas. (Fumées et poussières.) *Annuaire d'Hygiène Publique, Industrielle et Sociale.* 1926, v. 4, 701–31. (Abstract by E. L. Collis, in *Bulletin of Hygiene*, vol. 2, No. 3, March, 1927. p. 178.)

This article deals essentially with atmospheric pollution by the products of combustion of coal. Smoke and dust may coexist, or either may be present alone. Ancient theories on the atmospheric origin of diseases are quoted, from Hippocrates onwards. Then come references to modern observations: In Pittsburgh 1,031 tons of soot are deposited annually on a square mile, 820 in Glasgow, and 539 in Leeds. Such facts have led to the smoke-abatement movement in England, which is equally required in other countries. We breathe six times more air by weight than we consume of food and liquid; hence the purity of the air is even more important than that of food and water. The finest of dust, of the order of 1 micron, may remain suspended in the air, say, after a volcanic eruption, for three or four years. Dust is attracted by cold, dry surfaces and repelled by warm, damp ones, such as the air passages. In fine weather in the country 500 dust particles may be present per cubic centimeter of air; but in the air of towns, like Glasgow, there are 3,500,000; on the Righi, in Switzerland, the particles vary from 500 to 3,400. Much can be done to improve the condition by care in burning coal, by teaching stokers how to stoke, and by using coke or gas for domestic fires.

The smoke from domestic fires is said to be three times as much as is liberated from industrial chimneys. Thousands of tons of benzol, heavy oil, and resin are being lost constantly into the air. Dust particles affect visibility; 1,000 particles per cubic centimeter prevent mountains 100 miles away from being seen; 100,000 particles reduce visibility to 1 mile; and 1,000,000 reduce it to one-tenth mile. Smoke also interferes with the sun's rays, reducing particularly long-wave radiations. Statistics are quoted from English data to show how much greater are death rates from respiratory diseases (other than tuberculosis) in smoky towns like Glasgow and Manchester than in rural areas, a condition also found in Germany. The observations made by Doctor Owen for the Air Ministry are quoted with approval in hope that other countries may follow suit. Economic advantages are to be gained from better use of coal fuel and the prevention of smoke, and simultaneously no small gain to the public health.

Public Health (Smoke Abatement) Act, 1926. Anon. *The Medical Officer*, vol. 37, No. 9, February 26, 1927, p. 98. (Abstract by Leonard Greenburg.)

This is a summary of the recent legislation enacted on proposal of the Ministry of Health. Following is a list of the section and subsection titles of this act: Extension of meaning of smoke; penalties; exempted processes; defense of "best practicable means"; notice of nuisance; by-laws as to smoke standards; alkali, extension of; works regulation act, 1906; by-laws as to new buildings; default powers; research and Crown premises.

It is quite impossible to abstract the contents of these sections, because the material as presented is in a very brief form and not amenable to further condensation. For the contents of the sections cited above the reader is referred to the original paper.

Anti-Smoke By-Law Claimed to be a Real Economic Measure. *Sanitary Engineer*, December 15, 1926, vol. 20, No. 24, p. 14. From abstracts of current public health literature, department of health, Ottawa, Canada, February, 1927, p. 12.

K. L. Dawson, A. M. E. I., of the Nova Scotia Tramway and Power Co., Halifax, in an address at St. John, New Brunswick, said that most stoves and furnaces waste 60 to 70 per cent of the energy in the coal they consume and that the average steam plant wastes 35 to 45 per cent. He estimates that for every ton of soft coal burned it costs $1 for extra laundry work, paint, etc. The smoke nuisance may be avoided by care and knowledge of proper methods of firing.

DEATHS DURING WEEK ENDED MAY 21, 1927

Summary of information received by telegraph from industrial insurance companies for week ended May 21, 1927, and corresponding week of 1926. (From the Weekly Health Index, May 26, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 21, 1927	Corresponding week 1926
Policies in force	67, 703, 113	64, 495, 026
Number of death claims	13, 565	12, 801
Death claims per 1,000 policies in force, anual rate	10. 4	10. 3

Deaths from all causes in certain large cities of the United States during the week ended May 21, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 26, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 21, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 21, 1927 [2]
	Total deaths	Death rate [1]		Week ended May 21, 1927	Corresponding week 1926	
Total (66 cities)	6, 978	12.4	[3] 13.3	704	[3] 873	[4] 59
Akron	44			7	5	75
Albany [5]	37	16.1	15.3	3	1	63
Atlanta	68			7	6	
White	27			3	2	
Colored	41	(6)		4	4	
Baltimore [5]	240	15.3	16.7	20	33	62
White	178		14.5	13	19	50
Colored	62	(6)	29.8	7	14	109
Birmingham	77	18.7	17.8	10	4	
White	41		10.6	8	1	
Colored	36	(6)	28.9	2	3	
Boston	213	14.0	16.2	25	24	70
Bridgeport	31			3	5	56
Buffalo	175	16.6	15.2	24	26	101
Cambridge	24	10.1	15.4	3	5	53
Camden	23	9.0	15.1	4	2	69
Canton	18	8.3	13.7	1	11	24
Chicago [5]	711	12.0	11.3	71	62	61
Cincinnati	123	15.6	17.8	8	14	50
Cleveland	174	9.2	10.5	20	30	53
Columbus	97	17.4	12.1	7	8	65
Dallas	52	13.0	11.6	9	7	
White	38		9.5	9	5	
Colored	14	(6)	25.1	0	2	
Dayton	43	12.5	16.8	7	11	115
Denver	78	14.0	10.8	5	1	
Des Moines	26	9.1	9.3	1	1	17
Detroit	303	11.8	14.1	42	60	66
Duluth	33	15.0	9.2	2	3	43
El Paso	28	12.8	17.2	10	8	
Erie	29			4	3	78
Fall River [5]	22	8.6	10.3	3	4	53
Flint	26	9.5	13.4	3	7	49
Fort Worth	34	10.8	9.2	5	2	
White	23		7.4	5	2	
Colored	11	(6)	22.0	0	0	
Grand Rapids	32	10.5	10.4	7	6	103
Houston	52			3	8	
White	39			2	5	
Colored	13	(6)		1	3	
Indianapolis	78	10.9	14.9	8	9	63
White	64		14.2	6	8	54
Colored	14	(6)	20.1	2	1	122
Jersey City	73	11.8	10.8	6	10	45

1 Annual rate per 1,000 population.
2 Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
3 Data for 65 cities.
4 Data for 61 cities.
5 Deaths for week ended Friday, May 20, 1927.
6 In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended May 21, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 26, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 21, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 21, 1927
	Total deaths	Death rate		Week ended May 21, 1927	Corresponding week 1926	
Kansas City, Kans	30	13.4	10.3	2	2	39
White	24		9.2	2	1	45
Colored	6	(6)	15.3	0	1	0
Kansas City, Mo	115	15.7	13.5	10	14	
Knoxville	23	11.8		3		
White	20			3		
Colored	3	(6)		0		
Los Angeles	244			31	19	89
Louisville	76	12.4	14.3	1	10	9
White	62		12.0	1	8	10
Colored	14	(6)	26.6	0	2	0
Lowell	23	10.9	12.3	3	2	58
Lynn	18	8.9	13.0	3	1	79
Memphis	76	22.1	18.9	5	4	
White	41		17.8	1	2	
Colored	35	(6)	20.7	4	2	
Milwaukee	113	11.2	12.1	15	16	70
Minneapolis	96	11.3	11.2	11	14	62
Nashville [5]	42	15.9	21.3	0	6	
White	23		17.0	0	4	
Colored	19	(6)	32.1	0	2	
New Bedford	25	10.9	11.3	1	7	17
New Haven	34	9.6	7.7	3	4	42
New Orleans	153	18.8	14.8	14	9	
White	93		12.8	6	4	
Colored	60	(6)	20.6	8	5	
New York	1,432	12.5	13.6	152	171	63
Bronx Borough	156	8.8	10.1	13	15	41
Brooklyn Borough	491	11.3	12.3	56	57	58
Manhattan Borough	602	17.3	18.0	67	80	79
Queens Borough	145	9.3	9.7	13	17	56
Richmond Borough	38	13.5	19.0	3	2	56
Newark, N. J	75	8.4	12.7	10	25	50
Oakland	52	10.2	9.4	2	4	23
Oklahoma City	21			5	0	
Omaha	49	11.7	13.0	2	3	22
Paterson	33	11.9	12.4	2	3	35
Philadelphia	433	11.1	13.5	41	61	55
Pittsburgh	162	13.1	13.5	17	20	59
Portland, Oreg	56			1	1	11
Providence	62	11.6	13.8	8	8	68
Richmond	55	14.9	13.0	2	4	26
White	34		10.9	2	3	40
Colored	21	(6)	18.0	0	1	0
Rochester	76	12.2	17.9	12	13	101
St. Louis	195	12.1	13.2	14	27	
St. Paul	58	12.1	10.9	7	3	64
Salt Lake City [5]	26	10.0	14.1	2	2	80
San Antonio	48	11.9	15.8	10	16	
San Diego	51	23.1	18.5	4	2	85
San Francisco	139	12.6	11.4	8	7	50
Schenectady	18	10.1	13.5	3	1	90
Seattle	48			3	3	31
Somerville	20	10.2	12.0	0	3	0
Spokane	24	11.5	8.1	0	1	0
Springfield, Mass	31	11.0	12.6	2	0	31
Syracuse	57	15.1	13.8	3	8	39
Toledo	63	10.8	13.3	6	10	58
Trenton	27	10.3	15.6	2	5	35
Washington, D. C	122	11.8	15.0	8	10	46
White	79		11.5	2	4	17
Colored	43	(6)	25.3	6	6	110
Waterbury	19			2	5	47
Wilmington, Del	24	9.9	12.6	5	3	124
Worcester	48	12.8	15.9	5	12	60
Yonkers	13	5.7	11.2	1	4	23
Youngstown	21	6.5	9.2	1	3	14

[5] Deaths for week ended Friday, May 20, 1927.

[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Mem- [illegible] Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended May 28, 1927

DIPHTHERIA

	Cases
Alabama	24
Arkansas	4
California	128
Colorado	6
Connecticut	36
Florida	11
Georgia	6
Illinois	104
Indiana	26
Kansas	8
Louisiana	21
Maine	12
Maryland [1]	50
Massachusetts	75
Michigan	76
Minnesota	17
Mississippi	6
Missouri [2]	28
Montana	5
Nebraska	2
New Jersey	103
New Mexico	6
New York [3]	65
North Carolina	11
Oklahoma [4]	5
Oregon	5
Pennsylvania	222
Rhode Island	10
South Carolina	3
South Dakota	6
Tennessee	4
Texas	23
Utah [1]	9
Vermont	1
Washington	3
West Virginia	9
Wisconsin	35

INFLUENZA

	Cases
Alabama	37
Arkansas	31
California	19
Connecticut	1
Florida	2
Georgia	33
Illinois	21
Indiana	1
Kansas	22
Louisiana	13
Maine	1
Maryland [1]	8
Massachusetts	6
Michigan	5
Minnesota	4
Missouri [2]	4
Nebraska	5
New Jersey	8
Oklahoma [4]	39
Oregon	16
South Carolina	397
South Dakota	1
Tennessee	11
Texas	20
Washington	1
West Virginia	3
Wisconsin	59

MEASLES

	Cases
Alabama	221
Arizona	31
Arkansas	50
California	924
Colorado	202
Connecticut	57
Delaware	8
Florida	113

[1] Week ended Friday.
[2] Exclusive of Kansas City.
[3] Exclusive of New York City.
[4] Exclusive of Oklahoma City and Tulsa.

MEASLES—continued

	Cases
Georgia	73
Illinois	728
Indiana	109
Kansas	753
Louisiana	33
Maine	143
Maryland [1]	34
Massachusetts	470
Michigan	292
Minnesota	110
Missouri [2]	75
Montana	39
Nebraska	185
New Jersey	78
New Mexico	107
New York [3]	845
North Carolina	1,586
Oklahoma [4]	317
Oregon	284
Pennsylvania	809
Rhode Island	3
South Carolina	231
South Dakota	102
Tennessee	49
Texas	102
Utah [1]	11
Vermont	103
Washington	310
Wisconsin	867
Wyoming	117

MENINGOCOCCUS MENINGITIS

California	9
Illinois	5
Kansas	1
Louisiana	1
Massachusetts	4
Michigan	1
Minnesota	1
Montana	3
New Jersey	6
New York [3]	2
North Carolina	1
Oklahoma [4]	1
Oregon	2
Pennsylvania	3
Tennessee	2
Washington	7
West Virginia	1
Wisconsin	10

POLIOMYELITIS

Arizona	2
California	4
Georgia	1
Louisiana	2
Massachusetts	2
Minnesota	2
Mississippi	2
Nebraska	1
Oklahoma [4]	1
South Carolina	3
Texas	1

SCARLET FEVER

	Cases
Alabama	7
Arizona	1
Arkansas	6
California	117
Colorado	132
Connecticut	4
Delaware	8
Florida	5
Georgia	11
Illinois	230
Indiana	70
Kansas	56
Louisiana	6
Maine	34
Maryland [1]	64
Massachusetts	427
Michigan	237
Minnesota	160
Mississippi	7
Missouri [2]	45
Montana	21
Nebraska	18
New Jersey	396
New Mexico	23
New York [3]	240
North Carolina	9
Oklahoma [4]	13
Oregon	22
Pennsylvania	481
Rhode Island	12
South Carolina	5
South Dakota	18
Tennessee	8
Texas	8
Utah [1]	15
Vermont	3
Washington	44
West Virginia	26
Wisconsin	156
Wyoming	26

SMALLPOX

Alabama	26
Arkansas	2
California	17
Colorado	6
Florida	40
Georgia	22
Illinois	38
Indiana	106
Kansas	10
Louisiana	7
Michigan	37
Minnesota	2
Mississippi	2
Missouri [2]	3
Montana	4
Nebraska	5
New York [3]	3
North Carolina	30
Oklahoma [4]	43
Oregon	16
South Carolina	7

[1] Week ended Friday.
[2] Exclusive of Kansas City.
[3] Exclusive of New York City.
[4] Exclusive of Oklahoma City and Tulsa.

SMALLPOX—continued

	Cases
South Dakota	4
Tennessee	9
Texas	34
Utah [1]	2
Virginia	3
Washington	34
West Virginia	37
Wisconsin	70
Wyoming	8

TYPHOID FEVER

	Cases
Alabama	39
Arkansas	20
California	12
Colorado	2
Connecticut	5
Florida	21
Georgia	36
Illinois	13
Indiana	1
Kansas	3
Louisiana	39

TYPHOID FEVER—continued

	Cases
Maine	3
Maryland [1]	4
Massachusetts	5
Michigan	5
Minnesota	2
Mississippi	21
Missouri [2]	2
Montana	5
Nebraska	2
New Jersey	3
New Mexico	1
New York [3]	6
North Carolina	23
Oklahoma [4]	15
Oregon	12
Pennsylvania	21
Rhode Island	1
South Carolina	37
Tennessee	16
Texas	11
West Virginia	9
Wisconsin	3

Reports for Week Ended May 21, 1927

DIPHTHERIA

	Cases
Alabama	10
California	113
District of Columbia	12
Georgia	9
Indiana	16
Iowa [1]	31
Minnesota	29
Mississippi	4
Missouri	33
Nebraska	1
North Dakota	7
Oklahoma [4]	3
Rhode Island	8
South Carolina	11
Tennessee	4

INFLUENZA

	Cases
Alabama	35
California	22
District of Columbia	1
Georgia	86
Indiana	8
Minnesota	3
Missouri	8
Oklahoma [4]	23
South Carolina	478
Tennessee	20

MEASLES

	Cases
Alabama	227
California	1,638
District of Columbia	4
Georgia	120
Indiana	209
Iowa [1]	281
Minnesota	149

MEASLES—continued

	Cases
Missouri	192
Nebraska	186
North Dakota	38
Oklahoma [4]	301
South Carolina	228
Tennessee	88
Wyoming	97

MENINGOCOCCUS MENINGITIS

	Cases
California	4
Iowa [1]	1
Minnesota	1
Missouri	5
North Dakota	1
Tennessee	1
Wyoming	1

POLIOMYELITIS

	Cases
California	4
Minnesota	1
North Dakota	3
Rhode Island	1
South Carolina	1

SCARLET FEVER

	Cases
Alabama	8
California	161
District of Columbia	13
Georgia	9
Indiana	107
Iowa [1]	33
Minnesota	168
Mississippi	6
Missouri	84
Nebraska	28
North Dakota	27

[1] Week ended Friday.
[2] Exclusive of Kansas City.
[3] Exclusive of New York City.
[4] Exclusive of Oklahoma City and Tulsa.

SCARLET FEVER—continued

State	Cases
Oklahoma [4]	23
Rhode Island	18
South Carolina	5
Tennessee	29
Wyoming	11

SMALLPOX

State	Cases
Alabama	27
California	22
District of Columbia	6
Georgia	37
Indiana	98
Iowa [1]	6
Minnesota	1
Mississippi	43
Missouri	24
Nebraska	9

SMALLPOX—continued

State	Cases
North Dakota	1
Oklahoma [4]	36
South Carolina	25
Tennessee	17

TYPHOID FEVER

State	Cases
Alabama	21
California	9
Georgia	31
Indiana	2
Iowa [1]	1
Minnesota	4
Mississippi	12
Missouri	5
Oklahoma [4]	28
South Carolina	39
Tennessee	20

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February, 1927										
New Mexico		11	9	1	196		1	108	18	10
March, 1927										
New Mexico		32	7	1	268		0	60	28	3
April, 1927										
District of Columbia	1	111	16		27		1	91	0	0
Idaho	6	13			462		0	115	60	3
Illinois	31	457	306	9	7,622		4	1,145	113	40
Kansas	11	48	85		4,613		2	470	98	8
Louisiana	1	113	80	46	434	21	2	41	25	73
Maine	1	22	103		673		0	144	1	15
Maryland	4	123	228	1	1,201		0	280	0	36
Minnesota	21	151	28		874		0	813	14	10
Missouri	14	243	37	12	1,448		4	600	121	16
Oklahoma [1]	2	92	432	74	2,000	51	1	258	163	99
Rhode Island	1	32			20		1	106	0	3
South Carolina		129	7,691	538	833	401	6	26	96	33
South Dakota	4	20	27		1,057		2	287	42	1
West Virginia		77	260		818		0	195	193	22
Wisconsin	41	157	267		3,540		2	804	42	4
Wyoming	1	6			331		0	71	9	1

[1] Exclusive of Oklahoma City and Tulsa.

February, 1927

New Mexico:	Cases
Chicken pox	206
Conjunctivitis	5
German measles	176
Mumps	181
Puerperal septicemia	1
Tetanus	1
Trachoma	2
Whooping cough	20

March, 1927

New Mexico:	Cases
Chicken pox	181
Conjunctivitis	8
German measles	389
Lethargic encephalitis	1
Mumps	173
Puerperal septicemia	1
Rabies in animals	3
Trachoma	2
Whooping cough	38

[1] Week ended Friday.

[4] Exclusive of Oklahoma City and Tulsa.

April, 1927

	Cases
Anthrax:	
Louisiana	1
South Dakota	1
Chicken pox:	
District of Columbia	224
Idaho	57
Illinois	1,174
Kansas	439
Louisiana	49
Maine	124
Maryland	341
Minnesota	629
Missouri	373
Oklahoma	109
Rhode Island	54
South Carolina	539
South Dakota	80
West Virginia	219
Wisconsin	1,010
Wyoming	35
Dengue:	
Louisiana	2
South Carolina	19
Dysentery:	
Illinois	36
Louisiana	6
Maryland	2
Minnesota	1
Oklahoma	7
German measles:	
Illinois	193
Kansas	73
Maine	263
Maryland	14
Rhode Island	7
West Virginia	169
Wisconsin	254
Wyoming	63
Hookworm disease:	
Louisiana	12
South Carolina	131
Impetigo contagiosa:	
Maryland	2
Lead poisoning:	
Illinois	13
Missouri	1
Leprosy:	
Missouri	1
Rhode Island	1
Lethargic encephalitis:	
Idaho	1
Illinois	16
Louisiana	2
Maryland	2
Minnesota	2
Wisconsin	1
Mumps:	
Idaho	10
Illinois	2,263
Kansas	249
Louisiana	64
Maine	69
Maryland	877
Missouri	517
Oklahoma	134
Rhode Island	24
South Carolina	90
South Dakota	40
Wisconsin	1,396
Wyoming	125
Ophthalmia neonatorum:	
Illinois	51
Maryland	2

April, 1927

	Cases
Ophthalmia neonatorum—Continued.	
Missouri	2
Oklahoma	1
Wisconsin	5
Paratyphoid fever:	
Illinois	1
South Carolina	4
Puerperal septicemia:	
Illinois	2
Pink eye:	
Kansas	1
Rabies in animals:	
District of Columbia	7
Idaho	2
Maryland	11
Missouri	14
South Carolina	24
Rabies in man.	
South Dakota	1
Rocky Mountain spotted or tick fever:	
Idaho	5
Wyoming	14
Scabies:	
Oklahoma	1
Septic sore throat:	
Illinois	6
Maryland	8
Missouri	4
Oklahoma	3
Rhode Island	1
Tetanus:	
Illinois	2
Louisiana	5
Maine	1
Maryland	5
Missouri	1
Oklahoma	1
Trachoma:	
Illinois	7
Maryland	2
Minnesota	2
Missouri	18
Rhode Island	1
Tularemia:	
Kansas	1
Oklahoma	2
Typhus fever:	
Maryland	1
Vincent's angina:	
Kansas	6
Maine	7
Maryland	2
Oklahoma	1
Wyoming	1
Whooping cough:	
District of Columbia	47
Idaho	26
Illinois	850
Kansas	286
Louisiana	91
Maine	124
Maryland	332
Minnesota	89
Missouri	280
Oklahoma	141
Rhode Island	31
South Carolina	944
South Dakota	42
West Virginia	302
Wisconsin	639
Wyoming	9

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of April, 1927, to other State health departments by departments of health of certain States

Referred by—	Chicken pox	Scarlet fever	Small-pox	Tuber-culosis	Typhoid fever
California				1	
Connecticut		1			
Illinois	1		1		3
Massachusetts					2
Minnesota				20	
New York [1]					3
Rhode Island				1	

[1] One notification regarding rabies.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 100 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,900,000. The estimated population of the 94 cities reporting deaths is more than 30,200,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 14, 1927, and May 15, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
40 States	1,531	1,123	
100 cities	1,036	704	857
Measles:			
38 States	12,440	28,384	
100 cities	3,590	9,117	
Poliomyelitis:			
41 States	20	9	
Scarlet fever:			
40 States	4,545	3,954	
100 cities	2,020	1,899	1,144
Smallpox:			
40 States	692	530	
100 cities	125	147	123
Typhoid fever:			
40 States	282	220	
100 cities	47	45	49
Deaths reported			
Influenza and pneumonia:			
94 cities	787	942	
Smallpox:			
94 cities	0	3	
Omaha	0	1	
Los Angeles	0	2	

City reports for week ended May 14, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	3	1	0	0	1	4	0	4
New Hampshire:									
Concord	22,546	0	0	0	0	0	2	0	1
Manchester	83,097	0	1	0	0	2	0	0	1
Vermont:									
Barre	10,008	5	0	0	0	0	0	2	0
Burlington	24,089	1	0	0	0	0	16	1	0
Massachusetts:									
Boston	779,620	60	48	25	7	2	127	65	35
Fall River	128,993	1	3	2	1	1	6	1	3
Springfield	142,065	17	2	3	0	0	0	22	1
Worcester	190,757	29	4	2	0	0	0	7	1
Rhode Island:									
Pawtucket	69,760	0	1	2	0	0	1	0	3
Providence	267,918	0	9	4	0	1	3	0	8
Connecticut:									
Bridgeport	(1)	0	5	5	0	0	4	2	3
Hartford	160,197	4	6	1	0	0	2	5	2
New Haven	178,927	25	3	1	0	1	0	5	6
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	17	8	22	-------	1	8	9	20
New York	5,873,356	224	231	381	18	11	81	207	181
Rochester	316,786	12	10	37	-------	0	14	6	5
Syracuse	182,003	12	5	1	-------	0	243	8	2
New Jersey:									
Camden	128,642	8	4	25	1	2	1	1	1
Newark	452,513	123	14	6	3	0	7	97	7
Trenton	132,020	1	3	1	0	2	0	0	7
Pennsylvania:									
Philadelphia	1,979,364	98	68	65	-------	8	48	141	48
Pittsburgh	631,563	55	16	34	-------	5	126	12	33
Reading	112,707	3	3	0	-------	0	75	64	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	26	6	5	0	1	2	14	11
Cleveland	936,485	137	20	43	5	0	4	77	14
Columbus	279,836	9	8	2	0	0	1	1	0
Toledo	287,380	82	4	0	0	0	42	7	8
Indiana:									
Fort Wayne	97,846	7	2	1	0	1	16	0	4
Indianapolis	358,819	16	4	5	0	2	17	63	12
South Bend	80,091	2	1	1	0	0	8	0	1
Terre Haute	71,071	1	1	0	0	0	18	6	8
Illinois:									
Chicago	2,995,239	96	78	79	11	5	416	151	52
Peoria	81,564	2	1	0	0	0	8	0	3
Springfield	63,923	7	1	0	0	0	2	1	8

[1] No estimate made.

City reports for week ended May 14, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Michigan:									
Detroit	1,245,824	107	45	49	3	4	7	172	28
Flint	130,316	31	3	1	0	0	16	10	5
Grand Rapids	153,698	10	3	0	0	1	21	1	4
Wisconsin:									
Kenosha	50,891	26	1	0	0	0	8	33	0
Madison	46,385	4	1	0	1	0	11	1	2
Milwaukee	509,192	129	11	10	1	0	137	119	10
Racine	67,707	16	1	2	0	0	2	10	0
Superior	39,671	1	1	0	0	1	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	10	1	0	0	0	34	0	2
Minneapolis	425,435	87	16	11	0	1	17	0	6
St. Paul	246,001	34	15	12	0	1	14	2	7
Iowa:									
Davenport	52,469	0	1	0	0	--------	2	2	--------
Sioux City	76,411	2	1	0	0	--------	33	8	--------
Waterloo	36,771	0	0	0	0	--------	0	1	--------
Missouri:									
Kansas City	367,481	11	6	3	0	0	37	7	6
St. Joseph	78,342	2	1	0	0	0	21	0	2
St. Louis	821,543	22	38	39	0	0	33	84	--------
North Dakota:									
Fargo	26,403	0	0	0	0	0	5	5	0
Grand Forks	14,811	0	0	0	0	--------	0	0	--------
South Dakota:									
Aberdeen	15,036	2	0	0	0	--------	4	1	--------
Sioux Falls	30,127	0	0	0	0	--------	31	0	--------
Nebraska:									
Lincoln	60,941	6	1	0	0	0	122	7	0
Omaha	211,768	5	2	1	0	0	32	13	7
Kansas:									
Topeka	55,411	6	1	1	1	0	213	1	2
Wichita	88,367	15	1	1	0	0	32	1	2
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	1	1	0	0	0	2	0	4
Maryland:									
Baltimore	796,296	84	21	34	11	3	10	31	32
Cumberland	33,741	0	0	0	0	0	1	0	1
Frederick	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	31	12	18	1	1	5	0	3
Virginia:									
Lynchburg	30,395	19	1	2	0	0	17	1	1
Norfolk	(1)	16	1	0	0	0	197	5	0
Richmond	186,403	5	1	4	0	2	163	2	4
Roanoke	58,208	2	1	0	0	0	0	0	0
West Virginia:									
Charleston	49,019	5	1	1	0	3	5	0	2
Wheeling	56,208	1	1	0	0	0	18	1	1
North Carolina:									
Raleigh	30,371	5	1	0	0	0	71	0	2
Wilmington	37,061	2	0	0	0	1	35	4	2
Winston-Salem	69,031	0	0	1	0	1	242	33	5
South Carolina:									
Charleston	73,125	1	0	1	6	0	15	0	2
Columbia	41,225	9	0	0	0	1	5	2	3
Greenville	27,311	0	0	0	0	0	2	0	1
Georgia:									
Atlanta	(1)	2	1	2	13	2	18	4	6
Brunswick	16,809	0	0	0	0	0	1	9	0
Savannah	93,134	1	0	0	13	0	5	2	2
Florida:									
Miami	69,754	9	4	1	0	0	11	2	1
St. Petersburg	26,847	--------	0	--------	--------	0	--------	--------	0
Tampa	94,743	6	1	1	0	0	45	0	0

[1] No estimate made

City reports for week ended May 14, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	0	1	0	0	0	0	2
Louisville	305,935	8	4	4	0	1	0	11	9
Tennessee:									
Memphis	174,533	4	2	1	0	1	6	0	2
Nashville	136,220	7	1	1	0	2	0	0	3
Alabama:									
Birmingham	205,670	6	1	9	1	1	22	1	8
Mobile	65,955	0	0	0	0	1	5	0	0
Montgomery	46,481	2	1	0	0	0	35	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	1	1	0	0		5	1	2
Little Rock	74,216	1	1	0	1	1	2	0	0
Louisiana:									
New Orleans	414,493	1	7	17	1	2	4	0	15
Shreveport	57,857	9	1	2	0	0	19	3	2
Oklahoma:									
Oklahoma City	(1)	6	1	1	5	0	30	0	5
Tulsa	124,478	5	1	2	0		93	24	
Texas:									
Dallas	194,450	3	3	3	0	0	99	1	4
Galveston	48,375	0	0	1	0	0	0	0	2
Houston	164,954	2	3	2	0	0	4	2	3
San Antonio	198,069	2	1	2	0	0	4	1	5
MOUNTAIN									
Montana:									
Billings	17,971	5	1	0	0	0	0	0	0
Great Falls	29,883	3	1	0	0	0	7	1	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	0	0	0	0	0	0	0	1
Idaho:									
Boise	23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	280,911	11	10	6		1	42	4	5
Pueblo	43,787	4	1	0	0	0	85	0	0
New Mexico:									
Albuquerque	21,000	4	1	0	0	0	3	8	1
Utah:									
Salt Lake City	130,948	36	3	5	0	0	10	1	0
Nevada:									
Reno	12,665	0	0	0	0	0	1	0	0
PACIFIC									
Washington:									
Seattle	(1)	47	5	1	0		100	38	
Spokane	108,897	2	2	0	0		1	0	
Tacoma	104,455	14	1	1	0	0	83	0	0
Oregon:									
Portland	282,383	10	5	5	0	0	201	3	0
California:									
Los Angeles	(1)	45	36	23	11	1	217	14	26
Sacramento	72,260	17	2	5	0	0	4	3	4
San Francisco	557,530	22	19	6	5	1	77	85	3

[1] No estimate made.

City reports for week ended May 14, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	3	5	0	0	0	0	1	0	0	5	17
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	2
Manchester	2	1	0	0	0	0	1	0	0	0	16
Vermont:											
Barre	0	2	0	0	0	0	0	0	0	0	3
Burlington	0	0	0	0	0	0	0	0	0	1	14
Massachusetts:											
Boston	57	112	0	0	0	15	2	1	1	25	259
Fall River	4	7	0	0	0	3	0	0	0	2	26
Springfield	6	5	0	0	0	2	0	0	0	7	36
Worcester	8	13	0	0	0	2	0	1	0	12	58
Rhode Island:											
Pawtucket	1	1	0	0	0	1	0	0	0	0	14
Providence	10	5	0	0	0	3	0	0	0	2	49
Connecticut:											
Bridgeport	9	11	0	0	0	4	0	0	0	0	35
Hartford	3	21	0	0	0	2	0	0	0	3	30
New Haven	6	6	0	0	0	3	1	0	0	1	39
MIDDLE ATLANTIC											
New York:											
Buffalo	17	25	0	0	0	8	1	0	0	16	135
New York	258	681	0	0	0	[1] 114	9	7	2	115	1,505
Rochester	13	14	0	0	0	2	1	0	0	5	86
Syracuse	10	11	0	0	0	1	0	0	0	10	35
New Jersey:											
Camden	6	2	0	0	0	1	0	0	0	0	36
Newark	23	50	0	0	0	8	1	0	0	38	87
Trenton	3	4	0	0	0	4	0	0	0	1	48
Pennsylvania:											
Philadelphia	79	143	0	0	0	49	4	3	0	31	508
Pittsburgh	28	27	0	0	0	11	0	0	0	20	181
Reading	2	6	0	0	0	0	0	0	0	2	22
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	25	2	2	0	10	1	0	0	0	140
Cleveland	32	65	1	0	0	11	1	1	0	29	176
Columbus	10	2	3	0	0	4	0	0	0	21	60
Toledo	12	6	4	0	0	9	1	0	0	40	76
Indiana:											
Fort Wayne	3	4	2	0	0	0	0	1	0	2	27
Indianapolis	9	17	13	24	0	4	0	0	0	20	99
South Bend	3	5	0	0	0	0	0	0	0	3	8
Terre Haute	3	0	0	0	0	0	0	0	0	1	17
Illinois:											
Chicago	111	99	2	1	0	67	3	2	0	97	659
Peoria	3	2	1	0	0	1	0	0	0	0	21
Springfield	2	6	0	0	0	0	1	0	0	0	19
Michigan:											
Detroit	79	102	2	0	0	24	2	1	0	96	307
Flint	5	28	2	0	0	1	0	0	0	3	27
Grand Rapids	7	23	0	2	0	1	0	0	0	7	33
Wisconsin:											
Kenosha	2	3	0	0	0	0	0	0	0	4	1
Madison	2	3	0	0	0	0	0	0	0	5	6
Milwaukee	23	48	1	1	0	9	0	0	0	29	117
Racine	4	7	2	0	0	0	0	0	0	15	9
Superior	2	0	2	0	0	1	0	0	0	0	8
WEST NORTH CENTRAL											
Minnesota:											
Duluth	5	8	1	0	0	3	0	0	0	1	26
Minneapolis	34	42	7	0	0	7	1	0	0	0	79
St. Paul	22	27	4	0	0	4	0	0	0	15	64

[1] Pulmonary tuberculosis only.

City reports for week ended May 14, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport	2	0	3	0	-------	-------	0	0	-------	0	-------
Sioux City	2	4	1	2	-------	-------	0	0	-------	5	-------
Waterloo	1	1	0	0	-------	-------	0	0	-------	6	-------
Missouri:											
Kansas City	9	12	1	5	0	4	0	0	0	10	105
St. Joseph	2	9	0	0	0	3	0	0	0	0	28
St. Louis	30	34	4	3	0	8	1	1	0	29	207
North Dakota:											
Fargo	1	5	0	0	0	1	0	0	0	2	7
Grand Forks	1	6	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	3	1	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	1	5	-------	0	-------	-------	0	0	-------	0	-------
Nebraska:											
Lincoln	1	1	0	0	0	1	0	0	0	6	14
Omaha	4	9	8	3	0	1	0	0	0	0	52
Kansas:											
Topeka	3	0	1	0	0	1	0	0	0	7	14
Wichita	2	10	2	0	0	0	0	0	0	5	33
SOUTH ATLANTIC											
Delaware:											
Wilmington	4	3	0	0	0	0	0	0	0	1	30
Maryland:											
Baltimore	32	33	0	0	0	12	2	1	1	41	229
Cumberland	1	0	0	0	0	0	0	0	0	0	10
Frederick	1	2	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	22	25	2	2	0	16	1	0	0	13	119
Virginia:											
Lynchburg	1	0	0	0	0	0	0	2	0	0	10
Norfolk	1	6	1	0	0	5	0	0	0	14	-------
Richmond	3	4	0	0	0	2	1	0	0	3	54
Roanoke	1	0	1	7	0	1	0	0	0	0	11
West Virginia:											
Charleston	0	1	1	0	0	2	0	0	0	0	19
Wheeling	2	3	0	0	0	4	0	0	0	0	16
North Carolina:											
Raleigh	1	0	1	0	0	1	0	0	0	0	13
Wilmington	1	0	0	0	0	0	0	0	0	10	10
Winston-Salem	0	1	4	0	0	1	0	0	0	38	22
South Carolina:											
Charleston	0	0	0	1	0	1	1	0	0	5	30
Columbia	0	0	1	1	-------	-------	0	0	-------	8	22
Greenville	0	0	1	1	0	0	1	0	0	0	5
Georgia:											
Atlanta	3	2	4	7	0	5	0	1	1	6	77
Brunswick	0	0	0	0	0	1	1	0	0	0	7
Savannah	1	1	0	1	0	5	1	0	0	2	24
Florida:											
Miami	1	0	-------	1	0	1	1	1	0	14	27
St. Petersburg	0	-------	0	-------	0	1	0	-------	0	-------	14
Tampa	0	1	0	1	0	3	0	1	1	2	27
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	2	1	0	0	1	0	0	0	0	27
Louisville	6	13	1	3	0	5	1	0	0	18	75
Tennessee:											
Memphis	4	15	3	2	0	10	1	2	0	14	69
Nashville	3	0	1	0	0	6	1	2	1	5	47
Alabama:											
Birmingham	2	0	7	6	0	5	2	9	1	26	56
Mobile	0	0	1	0	0	4	0	0	0	1	30
Montgomery	0	0	1	0	0	0	0	0	0	1	8

City reports for week ended May 14, 1927—Continued

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0			0	1	1	0	13
Little Rock	1	0	0	0	0	1	0	2	1	6	
Louisiana:											
New Orleans	4	3	2	0	0	13	2	2	1	10	169
Shreveport	0	0	1	1	0	3	0	1	1	0	26
Oklahoma:											
Oklahoma City	1	0	3	0	0	2	0	0	0	0	32
Tulsa	1	4	2	2			0	0		12	
Texas:											
Dallas	2	0	4	9	0	1	0	0	0	1	41
Galveston	0	1	0	0	0	2	1	0	0	0	14
Houston	1	0	0	4	0	1	0	0	0	0	41
San Antonio	0	1	0	0	0	8	0	0	0	0	63
MOUNTAIN											
Montana:											
Billings	1	0	1	0	0	0	0	0	0	2	5
Great Falls	1	5	1	0	0	0	0	0	0	0	8
Helena	1	0	0	0	0	0	0	0	0	0	
Missoula	1	0	0	0	0	0	0	0	0	0	1
Idaho:											
Boise	1	0	0	0	0	0	0	0	0	0	6
Colorado:											
Denver	12	41	2	0	0	12	0	1	0	1	81
Pueblo	1	21	0	0	0	1	1	0	0	0	13
New Mexico:											
Albuquerque	0	1	0	0	0	4	0	0	0	0	12
Utah:											
Salt Lake City	2	13	0	1	0	2	0	0	0	10	35
Nevada:											
Reno	0	1	0	0	0	0	0	0	0	0	1
PACIFIC											
Washington:											
Seattle	9	8	5	0			0	2		34	
Spokane	4	7	4	17			0	0		3	
Tacoma	3	7	2	12	0	0	0	0	0	1	23
Oregon:											
Portland	7	2	6	6	0	2	0	1	0	6	67
California:											
Los Angeles	23	32	7	0	0	28	1	1	0	11	245
Sacramento	2	1	0	4	0	3	0	0	0	0	27
San Francisco	14	22	3	2	0	10	1	1	0	40	145

Division, State, and city	Cerebrospinal meningitis: Cases	Cerebrospinal meningitis: Deaths	Lethargic encephalitis: Cases	Lethargic encephalitis: Deaths	Pellagra: Cases	Pellagra: Deaths	Poliomyelitis (infantile paralysis): Cases, estimated expectancy	Poliomyelitis: Cases	Poliomyelitis: Deaths
NEW ENGLAND									
Massachusetts:									
Boston	1	0	0	0	0	0	0	2	0
Fall River	0	1	1	0	0	0	0	0	0
Connecticut:									
Bridgeport	1	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	7	6	3	1	0	0	1	1	0
Rochester	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	0	0	0	0	2	2	0	0	0

City reports for week ended May 14, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland	1	0	0	1	0	0	1	0	0
Illinois:									
Chicago	10	2	4	1	0	0	0	0	0
Michigan:									
Detroit	3	0	1	0	0	0	0	0	0
Grand Rapids	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	7	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	0	0	0	0	0	0	0	0
Kansas:									
Wichita	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
North Carolina:									
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	1	1	0	0	0
Columbia	0	1	0	0	0	0	0	0	0
Georgia:									
Savannah	0	0	0	0	1	0	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
St. Petersburg	------	0	------	0	------	1	0	------	0
Tampa [1]	0	0	0	0	3	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	0	0	0	0	1	0	0	0	0
Alabama:									
Mobile	0	0	0	0	1	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana: [2]									
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas [3]	0	0	0	0	1	1	0	0	0
Houston	0	0	0	0	1	0	0	0	0
MOUNTAIN									
Montana:									
Billings	0	1	0	0	0	0	0	0	0
Missoula	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	3	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane	1	------	0	------	0	------	0	0	------
Oregon:									
Portland	1	1	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	0	0	1	1	0	1	1
Sacramento	0	1	0	0	0	0	0	0	0
San Francisco	1	0	0	0	0	0	0	1	0

[1] Typhus fever: 1 case at Tampa, Fla.
[2] Rabies (human): 1 death at New Orleans, La.
[3] Dengue: 1 case at Dallas, Texas.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended May 14, 1927, compared with those for a like period ended May 15, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, April 10 to May 14, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926[1]

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 17, 1926	Apr. 16 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927
101 cities	110	[2] 175	118	180	110	171	115	183	121	[3] 175
New England	47	104	73	135	83	95	106	130	87	104
Middle Atlantic	119	271	162	270	114	243	126	273	135	282
East North Central	86	[2] 136	87	132	98	138	89	160	96	132
West North Central	246	109	182	141	204	159	198	131	202	135
South Atlantic	89	141	67	136	67	105	75	120	76	116
East South Central	47	87	26	31	72	76	62	76	52	[3] 81
West South Central	30	143	47	126	56	180	60	143	82	113
Mountain	191	108	82	189	118	99	146	153	182	99
Pacific	134	115	145	157	153	188	177	110	174	94

MEASLES CASE RATES

101 cities	1,770	[2] 762	1,792	785	1,708	640	1,713	699	1,565	[3] 606
New England	1,809	223	1,663	295	1,526	323	1,710	269	1,196	346
Middle Atlantic	1,702	173	1,590	146	1,420	231	1,432	213	1,200	298
East North Central	1,471	[2] 861	1,459	778	1,488	638	1,456	568	1,373	453
West North Central	3,354	1,318	4,148	1,556	4,060	1,229	4,511	1,527	4,181	935
South Atlantic	2,919	1,317	2,516	1,596	2,507	1,022	1,926	1,583	1,917	1,553
East South Central	2,772	397	3,434	520	2,875	377	3,237	520	3,449	[3] 368
West South Central	133	1,019	163	1,267	159	935	125	889	155	575
Mountain	529	2,086	1,075	1,798	866	1,546	884	1,636	1,394	1,304
Pacific	372	2,212	501	2,107	664	1,532	656	1,605	675	1,262

SCARLET FEVER CASE RATES

101 cities	307	[2] 391	284	363	292	338	294	360	326	[3] 341
New England	373	423	222	346	281	402	222	392	311	439
Middle Atlantic	187	583	201	529	221	448	217	541	249	475
East North Central	343	[2] 280	288	296	290	282	310	283	356	290
West North Central	910	397	899	343	879	334	940	272	871	320
South Atlantic	181	150	158	161	216	104	175	129	220	149
East South Central	150	219	228	168	171	194	186	183	202	[3] 151
West South Central	133	50	172	42	146	34	176	59	155	21
Mountain	173	953	210	935	219	953	137	1,007	246	728
Pacific	338	243	260	209	204	199	206	212	257	202

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Madison, Wis., not included.
[3] Covington, Ky., not included.

Summary of weekly reports from cities, April 10 to May 14, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927
101 cities	26	[2] 24	31	33	26	21	26	22	26	[3] 21
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	14	[2] 32	22	29	19	33	22	28	20	20
West North Central	42	56	44	40	30	38	58	34	36	26
South Atlantic	43	27	47	65	28	20	30	36	39	38
East South Central	52	97	98	163	98	66	72	56	119	[3] 59
West South Central	95	88	112	96	146	25	159	34	116	59
Mountain	27	27	46	54	36	9	36	36	55	9
Pacific	137	26	139	97	102	65	56	73	67	92

TYPHOID FEVER CASE RATES

	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927
101 cities	7	[2] 8	8	7	9	8	8	9	8	[3] 8
New England	9	9	5	0	5	5	9	2	0	5
Middle Atlantic	7	5	8	7	6	5	7	10	10	5
East North Central	2	[2] 1	1	3	4	6	4	6	5	3
West North Central	4	12	6	4	6	4	6	2	2	2
South Atlantic	4	13	7	11	19	16	13	18	4	9
East South Central	0	36	26	31	21	31	16	15	0	[3] 70
West South Central	34	17	26	13	17	13	17	38	43	25
Mountain	9	9	0	27	18	9	0	18	9	9
Pacific	13	18	21	10	27	18	11	3	8	10

INFLUENZA DEATH RATES

	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927
95 cities	53	[2] 22	38	18	33	18	25	13	16	[3] 13
New England	52	16	40	12	35	7	14	5	5	14
Middle Atlantic	59	21	34	20	27	21	22	15	17	14
East North Central	67	[2] 11	42	11	46	10	29	7	18	10
West North Central	23	12	32	21	17	12	13	8	6	4
South Atlantic	43	39	30	22	28	29	19	17	17	24
East South Central	47	87	103	56	98	36	98	41	31	[3] 32
West South Central	53	43	62	31	26	47	44	13	26	13
Mountain	46	18	46	0	9	9	18	9	18	9
Pacific	21	14	4	10	11	21	4	21	4	7

PNEUMONIA DEATH RATES

	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927	May 15, 1926	May 14, 1927
95 cities	241	[2] 154	201	159	177	144	163	131	150	[3] 122
New England	302	156	233	151	210	183	170	139	165	144
Middle Atlantic	288	176	240	199	219	169	175	167	166	151
East North Central	[illegible]	[2] 142	192	135	152	128	178	122	147	99
West North Central	133	129	137	125	108	56	122	69	82	71
South Atlantic	208	188	206	180	178	156	170	114	183	125
East South Central	331	132	259	153	233	127	222	143	181	[3] 110
West South Central	181	78	128	78	150	125	110	112	128	134
Mountain	155	153	109	162	118	189	82	99	91	54
Pacific	117	117	71	97	74	117	78	79	92	114

[2] Madison, Wis., not included.

[3] Covington, Ky., not included.

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Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30, 438, 500	30, 960, 600	29, 778, 400	30, 289, 800
New England	12	12	2, 211, 000	2, 245, 900	2, 211, 000	2, 245, 900
Middle Atlantic	10	10	10, 457, 000	10, 567, 000	10, 457, 000	10, 567, 000
East North Central	16	16	7, 644, 900	7, 804, 500	7, 644, 900	7, 804, 500
West North Central	12	10	2, 585, 500	2, 626, 600	2, 470, 600	2, 510, 000
South Atlantic	21	20	2, 798, 500	2, 878, 100	2, 757, 700	2, 835, 700
East South Central	7	7	1, 008, 300	1, 023, 500	1, 008, 300	1, 023, 500
West South Central	8	7	1, 213, 800	1, 243, 300	1, 181, 500	1, 210, 400
Mountain	9	9	572, 100	580, 000	572, 100	580, 000
Pacific	6	4	1, 946, 400	1, 991, 700	1, 475, 300	1, 512, 800

FOREIGN AND INSULAR

PLAGUE ON VESSEL

Further relative to plague on steamship "Armadale Castle"—Cape Town--April 4, 1927.[1]—On April 4, 1927, the mail steamship *Armadale Castle* arrived at Cape Town, Union of South Africa, with a case of plague on board in the person of an electrician who had been on the vessel during three voyages. The patient was removed to hospital and died two hours later. The previous stops of the vessel were Durban, East London, and Port Elizabeth, ports in the Union of South Africa. No plague, human or rodent, was known to exist in or near these ports and no rat evidence was found on the vessel. The *Armadale Castle* had been fumigated before its last sailing from London and was believed to be practically free from rats, although the crowded condition of the hold prevented thorough examination. The vessel left for Madeira and Southampton April 8, 1927.

THE FAR EAST

Report for week ended April 30, 1927.—The following report for the week ended April 30, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:							China:						
Bombay	----	13	----	2	77	32	Canton	0	0	0	0	6	2
Calcutta	----	1	----	121	86	71	Shanghai	0	0	0	0	0	1
Rangoon	----	3	----	2	36	6	Macao	0	0	0	0	----	1
Bassein	----	1	----	0	0	0	Hong Kong	0	0	0	0	1	0
Madras	----	0	----	0	6	1	Manchuria: Mukden	0	0	0	0	1	0
Siam: Bangkok	0	0	14	9	2	1	Kwantung: Dairen	0	0	0	0	1	0
French Indo-China:							Japan: Yokohama	0	0	0	0	1	0
Saigon and Cholon	0	0	55	47	1	0	Egypt: Port Said	1	0	0	0	0	0
Haiphong	0	0	134	123	0	0							

[1] Public Health Reports, May 13, 1927, p. 1340.

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Kamaran, Aden.
Iraq.—Basrah.
Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.
British India.—Karachi, Chittagong, Cochin, Negapatam, Tuticorin, Moulmein, Vizagapatam.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Sabang, Belawan-Deli, Pontianak, Semarang, Menado, Banjermasin, Cheribon, Palembang, Makassar, Balikpapan, Samarinda, Surabaya, Padang.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Tourane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy, Tientsin.
Formosa.—Keelung, Takao.
Chosen.—Chemulpo, Fusan.
Manchuria.—Yingkow, Antung, Changchun, Harbin.
Kwantung.—Port Arthur.
Japan.—Nagasaki, Niigata, Shimonoseki, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
Samoa.—Apia.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibouti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Zanzibar.—Zanzibar.
Kenya.—Mombasa.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—Saint Denis.
Mauritius.—Port Louis.
Madagascar.—Majunga, Tamatave, Diego-Suarez.

AMERICA

Panama.—Colon, Panama.

Reports had not been received in time for publication from:

Ceylon.—Colombo.
Dutch East Indies.—Tarakan.
Union of Socialist Soviet Republics.—Vladivostok.

Belated information:

Week ended April 16th: *Pondicherry*, 1 fatal smallpox case. *Karikal*, nil.

ANGOLA (PORTUGUESE WEST AFRICA)

Plague—March 1-15, 1927.—During the period March 1 to 15, 1927, five cases of plague were reported in Angola, Portuguese West Africa. Of these, four cases occurred in Benguela district and one case and two deaths at Port Alexander, Mossamedes district.

Other communicable diseases.—During the same period other communicable diseases were reported as follows: *Influenza*—generally epidemic in light form, with 72 cases reported, of which 34 were at Loanda. (Population of Loanda 20,000.)

Malaria—present with about 75 reported cases. *Sleeping sickness*—four cases reported in Cuanza Norte. *Smallpox*—at Cuanza Norte, two cases.

AUSTRIA

Rat-extermination measures—Vienna.—Control of rats in Austria is based on a Federal law of February 4, 1925, which provides that in case of rat infestation the municipal authorities are empowered to use adequate rat-extermination measures. In the summer of 1926 the municipality of Vienna entered upon an inspection of the city to determine the rat-infested districts, and maps were made showing these sections, which formed the basis of the rat-killing campaign that followed. The area of the city was divided into 72 plots, to each of which was assigned an official charged with the rat-extermination work. A marked difference was found in the degree of rat infestation, the greatest numbers of rats being found in houses of antiquated sewerage, in open markets, slaughterhouses, and storehouses. Of the 43,000 houses in Vienna from 5 to 10 per cent were found to be badly infested. The rat-killing days were set for January 27 and 28 and March 3 and 4. The bait used for the first two days contained two per cent phosphorus; in the second rat-killing period, squill or sea-onion was used instead of the barium, the use of which was proposed but was rejected as possibly dangerous. The number of rats killed was estimated at 250,000 on the first two days and 500,000 for the second period of two days.

CANADA

Communicable diseases—Week ended May 14, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended May 14, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal meningitis				1				1
Influenza	10			3				13
Lethargic encephalitis				2				2
Smallpox				25	4		4	33
Typhoid fever		4	369	25	1		2	401

Communicable diseases—Quebec—Week ended May 14, 1927.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended May 14, 1927, as follows:

Disease	Cases	Disease	Cases
Chicken pox	6	Scarlet fever	45
Diphtheria	32	Tuberculosis	53
German measles	10	Typhoid fever	330
Influenza	2	Whooping cough	12
Measles	89		

Typhoid fever—Montreal—April 24–May 21, 1927.—Typhoid fever was reported in Montreal and municipalities in the immediate vicinity as follows:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
April 30, 1927	105	23	May 14, 1927	367	16
May 7, 1927	106	19	May 21, 1927	770	26

CHINA

Influenza—Manchuria—February–March, 1927.—Under date of April 19, 1927, influenza was reported to have been prevalent in Manchuria during the months of February and March, 1927. The type was stated to have been mild, with long convalescence.

Proposed sanitary measures—Harbin.—A report received under the same date relative to proceedings of the Harbin Sanitary Commission shows that the measures of public health proposed included cleanliness of the city, licensing of doctors, pharmacists, and nurses, and general measures for prevention of disease.

Vital statistics—Disease notification—Free vaccination against smallpox.—The quarterly report of the North Manchuria Plague Prevention Service, issued March, 1927, states that municipal authorities have been urged to institute the recording of vital statistics and notification of infectious diseases. Free vaccination against smallpox has been begun at hospitals operated by the service.

EGYPT

Communicable diseases—Week ended April 8, 1927.—During the week ended April 8, 1927, communicable diseases were reported in Egypt as follows:

Diseases	Cases	Deaths	Diseases	Cases	Deaths
Influenza	39		Typhoid fever	17	
Smallpox	6	1	Typhus fever	45	7

Plague—April 16–22, 1927.—During the week ended April 22, 1927, seven cases of plague were reported in Egypt, of which one case each occurred in the districts of Akhmim, Suhag, and Tanta, and four cases in the district of Guerga, at two localities.

Summary—January 1–April 22, 1927.—Total, 30 cases, as compared with 16 cases reported for the corresponding period of the preceding year.

Later cases.—In the Province of Guerga, from April 23 to 28, 1927, three cases with one death were reported.

Typhus fever—Alexandria—April 23–29, 1927.—During the week ended April 29, 1927, two cases of typhus fever with two deaths were reported at Alexandria, Egypt.

GREAT BRITAIN

Smallpox—London—April 28–May 9, 1927.—Virulent type indicated.—During the period April 28 to May 9, 1927, nine cases of smallpox with four deaths were reported in London, England. The occurrence was at Hendon, a suburb of the city. The high mortality was noted as indicative of a more virulent type of the disease than that prevalent in North England.

GREAT BRITAIN AND IRELAND

Vital statistics—Year 1926.—A summary giving the number of births, deaths, and marriages, and the rates per 1,000 population during the year 1926 is given below. The figures are taken from the Journal of the Royal Statistical Society, Vol. XC, Part II, 1927. They were compiled from the quarterly returns of the respective registrars general.

Countries	Births		Deaths		Marriages	
	Number	Per 1,000 population	Number	Per 1,000 population	Number	Per 1,000 population
England and Wales	694, 897	17. 8	453, 795	11. 6	46, 168	4. 8
Scotland	102, 450	20. 9	63, 775	13. 0	31, 241	6. 4
Northern Ireland	28, 208	22. 3	18, 837	14. 9	7, 269	5. 8
Irish Free State	61, 171	20. 6	41, 715	14. 0	----------	----------

IRELAND (IRISH FREE STATE)

Typhus fever—May 1–7, 1927. During the week ended May 7, 1927, two cases of typhus fever were reported in the Irish Free State, of which one case occurred in the Dublin district and one in the rural district of Letterkenny, Donegal County.

MADAGASCAR

Plague—March 1–15, 1927.—During the 15 days ended March 15, 1927, 144 cases of plague with 123 deaths were reported in the Island of Madagascar. The occurrence according to Provinces was as follows: Ambositra, cases, 7; Antisirabe, 13; Miarinarivo, (Itasy) 38; Moramanga, 9; Tananarive, 77. The distribution according to type was: Bubonic, 88; pneumonic, 25; septicemic, 31.

MAURITIUS

Plague—Port Louis—February, 1927.—A fatal case of plague was reported at Port Louis, Mauritius during the month of February, 1927.

MEXICO

Smallpox—State of Tamaulipas—May 21, 1927.—Information received under date of May 21, 1927, shows smallpox present at two localities in the State of Tamaulipas, Mexico, viz., Ciudad Camargo, with 4 cases, and San Miguel, situated about 18 miles east of Ciudad Camargo, with about 36 cases.

MONGOLIA

Further relative to plague outbreak—Mongolia—October, 1926.[1]—Information received under date of April 19, 1927, relative to the plague outbreak reported in Mongolia in October, 1926, shows that the focus of infection was a locality situated 35 to 50 miles from Chechan Han. The first case occurred October 10, in a girl who was employed as sheep tender in the locality of Chulotoi. It was stated that the girl had tried to catch a tarabagan and had chased it into a hole. She was taken ill shortly after with fever, and swellings in the armpits and groin, and died after six days of illness. The nature of the epidemic was verified by bacteriological examination of material taken at the locality.

SENEGAL

Plague—Smallpox—April 21–30, 1927.—During the 10 days ended April 30, 1927, 21 cases of plague with five deaths were reported in Senegal, occurring in the interior districts of Tivaouane and Thies. During the same period smallpox was reported with one case in Senegal, one in French Guinea, and a few cases in the Niger Territory.

UNION OF SOUTH AFRICA

Plague—Orange Free State—April 3–9, 1927.—During the week ended April 9, 1927, a fatal case of plague was reported in Rouville district, Orange Free State. The case occurred in a native and on a farm.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given:

Reports Received During Week Ended June 3, 1927[2]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Feb. 27–Mar. 26, 1927: Cases, 10,610; deaths, 5,451.
Bombay	Apr. 10–16	4	1	
Siam				Apr. 2–9, 1927: Cases, 125; deaths, 90.
Bangkok	Apr. 3–9	34	24	

[1] Public Health Reports, Dec. 31, 1926, p. 3008; Feb. 4, 1927, p. 359; Feb. 11, 1927, pp. 423, 447.
[2] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended June 3, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Angola:				
Benguela (District)	Mar. 1-15	5		Portuguese West Africa.
Port Alexander	do	1	2	In Mossamedes District.
Egypt				Apr. 16-22, 1927: Cases, 7. Jan. 1-Apr. 22, 1927: Cases, 30; corresponding period, year 1926: Cases, 16.
Guerga Province	Apr. 16-22	4		At two localities.
Do	Apr. 23-28	3	1	
India				Feb. 27-Mar. 26, 1927: Cases, 9,044; deaths, 6,309.
Bombay	Apr. 3-16	17	17	
Madras Presidency	Mar. 27-Apr. 2	16	5	
Madagascar				Mar. 1-15, 1927: Cases, 144; deaths, 123. Bubonic, cases, 88; pneumonic, 25; septicemic, 31.
Province—				
Ambositra	Mar. 1-15	7	7	Bubonic, 4; septicemic, 3.
Antisirabe	do	13	13	Pneumonic, 4; septicemic, 9.
Miarinarivo	do	138	31	Bubonic, cases, 32; deaths, 25; pneumonic, cases and deaths, 2; septicemic, cases and deaths, 4.
Moramanga	do	9	8	Bubonic, 4 and 3; pneumonic, 1; septicemic, 4.
Tananarive	do	77	64	Bubonic, cases, 48; deaths, 36; pneumonic cases, 18; deaths, 17; septicemic, 11. (Including cases, 5; deaths, 4, in Tananarive Town.)
Mauritius:				
Port Louis	Feb. 1-28	1	1	
Senegal	Apr. 24-30	21	5	In interior districts.
Siam				Apr. 3-9, 1927: Cases, 1; deaths, 1.
Bangkok	Apr. 3-9	1	1	
Union of South Africa:				
Orange Free State—				
Rouville District	do	1	1	In native. On farm.
On vessel:				
S. S. Armadale Castle	Apr. 4	1	1	At Cape Town, Union of South Africa, from London, via South African ports. Case in member of crew. Death occurred in hospital on shore. No plague rats and no rat evidence on vessel. Armadale Castle left Apr. 8 for Madeira and Southampton.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Oran	Apr. 21-30	20		
Angola:				
Cuanza Norte	Mar. 1-15	2		
Canada	May 8-14	33		
Alberta	do	4		
British Columbia—				
Vancouver	May 2-8	1		
Manitoba	May 8-14	4		
Winnipeg	May 15-21	1		
Ontario	May 8-14	25		
Toronto	do	3		
China:				
Swatow	Apr. 10-16			Present.
Egypt	Apr. 2-8			Cases, 6.
Great Britain	Apr. 24-30	277		
England and Wales—				
Bradford	do	1		
Hull	May 1-7	1		
London	Apr. 28-May 9	9	4	Occurring at Hendon, a suburb.
Newcastle on Tyne	May 1-7	6		
Stoke on Trent	do	1		
Scotland—				
Dundee	do	8		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended June 3, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India				Feb. 27-Mar. 26, 1927: Cases, 27,168; deaths, 6,652.
Bombay	Apr. 3-16	142	91	
Madras	Apr. 17-23	6	1	
Mexico:				
Ciudad Camargo	May 21	4		In State of Tamaulipas.
San Miguel	do	36		In State of Tamaulipas. Number estimated.
Persia:				
Teheran	Dec. 23-Jan. 22		3	
Do	Jan. 23-Feb. 23		2	
Portugal:				
Lisbon	Apr. 24-30	6		
Senegal				Apr. 21-30, 1927: 1 case.
Dependencies—				
French Guinea	Apr. 21-30	1		
Niger Territory	do			Present.
Siam				Apr. 3-9, 1927: Cases, 9; deaths, 2.
Bangkok	Apr. 3-9	5	2	
Spain:				
Valencia	May 1-7	4		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Apr. 11-20	7		
Oran	Apr. 21-30	4		
Bulgaria:				
Sofia	Apr. 23-29	1	1	
China:				
Manchuria—				
Harbin	Mar. 28-Apr. 3	1		
Egypt	Apr. 2-8	45	7	
Alexandria	Apr. 23-29	2	2	
Ireland (Irish Free State)—				
Donegal district—				
Letterkenny	May 1-7	1		
Dublin district	do	1		
Mexico:				
Mexico City	do	1		Including municipalities in Federal District.
Portugal:				
Lisbon	do	1		
Tunisia:				
Tunis	Apr. 21-30	4		

Reports Received from January 1 to May 27, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do	Jan. 2-Mar. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	232	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
Do	Jan. 2-Mar. 5	20	15	
India	Oct. 10-Jan. 1			Cases, 20,298; deaths, 13,507.
Do	Jan. 2-Feb 26			Cases, 17,443; deaths, 9,810.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do	Jan. 2-Apr. 9	745	601	
Madras	Dec. 26-Jan. 1	2	2	
Do	Jan. 2-Apr. 16	13	10	
Rangoon	Nov. 21-Jan. 1	11	7	
Do	Jan. 2-Apr. 2	62	52	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China	July 1-Dec. 31			Cases, 8,508.
Do	Jan. 1-Mar. 20	772		
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do	727	472	
Cochin-China	do	432	349	
Kwang-Chow-Wan	do	703	361	
Laos	do	56	47	
Tonkin	do	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do	Jan. 2-Apr. 2			Cases, 608; Deaths, 426.
Bangkok	Oct. 31-Jan. 1	16	5	
Do	Jan. 9-Apr. 2	112	65	
Straits Settlements	July 25-Oct. 16		60	
Singapore	Nov. 21-Jan. 1	14	8	
Do	Feb. 6-12	1		

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do	Jan. 19-Feb. 28	8		
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Mombasa	Feb. 27-Mar. 19	7	7	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	
Canary Islands:				
Atarfe	Dec. 20	1	1	Vicinity of Las Palmas.
Las Palmas	Jan. 8-Feb. 12	2		
San Miguel	do	1		Vicinity of Santa Cruz de Teneriffe.
Celebes:				
Makassar	Dec. 22			Outbreak.
Ceylon:				
Colombo	Nov. 14-Dec. 11	3	1	2 plague rodents.
Do	Jan. 2-Apr. 2	47	26	13 plague rodents.
China:				
Mongolia	Reported Dec. 21	500		
Nanking	Oct. 31-Dec. 18			Present.
Do	Feb. 6-Mar. 5			Do.
Ecuador:				
Guayaquil	Nov. 1-Dec. 31	26	8	Rats taken, 50,615; found infected, 184.
Do	Jan. 1-Mar. 31	79	22	Rats taken, 71,517; found in-

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Egypt	Jan. 1-Dec 9			Cases, 149.
Do	Jan. 1-Mar 18			Cases, 14.
Alexandria	Nov. 19-Dec. 2	2		
Do	Apr. 2-15	3	1	
Charkia Province	Jan. 5	1	1	At Zagazig (Tel el Kebir).
Gharbia Province	Jan 4	1	1	
Do	Apr. 29	1		
Guerga district	Apr. 5-21	13	6	
Kafr el Sheikh	Dec. 3-9	2		
Marsa Matrah	Dec. 23-29	10		
Do	Jan 27	1		
Port Said	Mar. 12-18	2	1	
Tanta district	Nov. 19-Dec. 20	3		
Greece:				
Athens and Piræus	Nov. 1-Dec. 31	19	5	
Do	Jan 1-Mar. 31	24	3	
Patras	Nov. 28-Dec. 4		1	
Pravi	Nov. 27	1	1	Province of Drama-Kavalla.
India	Oct. 10-Jan 1			Cases, 16,162, deaths, 9,905.
Do	Jan. 2-Feb. 19			Cases, 12,100; deaths, 8,934.
Bombay	Nov. 21-27	1	1	
Do	Jan. 16-Apr. 2	28	25	
Madras	Oct. 1-Jan. 1	581	324	
Do	Jan 2-Mar. 26	1,001	592	
Rangoon	Nov. 14-Dec. 25	11	9	
Do	Jan. 2-Apr. 2	55	50	Rats found plague infected, 12.
Indo-China	July 1-Dec. 31			Cases, 52; deaths, 34.
Do	Jan. 1-Feb 28	15		
Province—				
Cambodia	do	10	10	
Cochin-China	do	14	9	
Kwang-Chow-Wan	do	10		July, 1925: Cases, 22; deaths, 18.
Iraq:				
Baghdad	Jan. 23-Mar. 12	4	1	
Java:				
Batavia	Nov. 7-Jan. 1	91	90	Province.
Do	Jan. 2-Apr. 9	251	244	Do.
East Java and Madura	Oct. 24-Jan. 1	17	17	
Do	Jan. 2-Mar. 5	18	18	
Pribolingo District	Jan. 7			Outbreak at Ngadas.
Semarang	do			Seaport. Present.
Madagascar:				
Province—				
Ambositra	Dec. 16-31	10	10	
Do	Jan. 1-Feb. 28	58	56	
Analalava	Oct. 16-31	1	1	
Antisirabe	Dec. 16-21	2	2	
Do	Jan. 1-Feb. 28	69	69	
Diego-Suarez	do	7	7	
Itasy	Oct. 16-Dec. 31	39	39	
Do	Jan. 1-Feb. 28	32	125	
Maevatanana	Oct. 16-31	10	10	
Majunga	do	3	1	
Moramanga	Oct. 16-Dec. 31	92	67	
Do	Jan. 1-Feb. 28	60	53	
Tamatave	Oct. 16-Dec. 31	107	69	
Tananarive	do			Cases, 533; deaths, 497.
Do	Jan. 1-Feb. 28	423	415	
Town—				
Tamatave	Nov. 16-30	2		
Tananarive	Oct. 16-Dec. 31	48	47	
Do	Jan. 1-Feb. 15	19	18	
Mauritius:				
Plaines Wilhems	Oct. 1-Nov. 30	3	3	
Pamplemousses	Dec. 1-31	3	3	
Port Louis	Oct. 1-Dec. 31	39	35	
Do	Jan. 1-31	5	3	
Nigeria	Aug. 1-Dec. 31	1,066	967	
Do	Jan. 1-31	42	42	
Peru	Nov. 1-Dec. 31			Cases, 90; deaths, 26.
Do	Jan. 1-Mar. 31	92	23	
Department—				
Ancash	Dec. 1-31	6	6	
Do	Jan. 1-Mar. 31	3		
Cajamarca	do	36	6	
Callao	Mar. 1-31	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru—Continued.				
Department—Continued.				
Ica—				
Chincha	Nov. 1-30	1		
Lambayeque	Feb. 1-28	6	2	
Chiclayo	Nov. 1-30	3		
Do	Jan. 1-31	2		
Libertad	Dec. 1-31	2		
Do	Jan. 1-Feb. 28	6		
Lima	Nov 1-Dec. 31	42	14	
Do	Jan. 1-Mar. 31	75	20	
Piura	Feb. 1-28	1		
Portugal:				
Lisbon	Nov. 23-26	3	2	
Russia	May 1-June 30	44		
Do	July 1-Dec. 31	98		
Senegal	July 1-31	178	162	
Dakar	Apr. 1-10	10	7	
Diourbel	Nov. 20-30	12	1	
Thies	Mar. 28-Apr. 20	17	15	
Tivaouane	Dec. 19-25	6	2	In interior.
Do	Mar. 21-Apr. 20	27	10	Do.
Siam	Apr. 1-Jan. 1			Cases, 30; deaths, 22.
Do	Jan. 16-Mar. 26			Cases, 12; deaths, 10.
Bangkok	Feb. 27-Mar. 26	2	2	
Syria:				
Beirut	Nov. 11-Dec. 20	4		
Do	Feb. 1-10	1		
Tunisia	Dec. 1-31			Cases, 43.
Do	Jan. 12-26			Cases, 34.
Acheche district	Feb. 11-14	14	14	Pneumonia.
Bousse	Jan. 12-26	8		
Djeneniana	Feb. 11-14	8		
Kairouan	do	3		
Mahares	do	15		
Sfax	Oct. 1-Dec. 31	304	128	
Turkey:				
Constantinople	Dec. 15-25	1		
Union of South Africa:				
Cape Province—				
Cradock district	Jan. 2-Mar. 26	4	2	
De Aar district	Nov. 21-27	1		Native.
Glen Gray district	Jan. 31-Feb. 12	8	8	
Hanover district	Nov. 14-Jan. 1	3	2	
Do	Jan. 2-Apr. 2	3	2	
Middleburg district	Dec. 5-11	1	1	Do.
Richmond district	Mar. 6-12	3	2	
Tarkastad district	Mar. 27-Apr. 2	3	1	
Orange Free State:				
Bloomfontein district	Feb. 27-Mar. 19	3	3	
Bothaville district	Dec. 5-18	2	1	
Hoopstad district	Nov. 7-13	1	1	Native.
Do	Dec. 5-25	2	1	Do.
Do	Jan. 2-Feb. 12	4		
Vredefort district	Dec. 19-25	10	5	
Do	Feb. 6-12	2	1	
On vessel:				
S. S. Leconte de Lisle	Feb. 21-23	2		At Tamatave, Madagascar.

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 31			Cases, 797.
Do	Jan. 1-Mar. 20			Cases, 518.
Algiers	Dec. 11-31	4		
Do	Jan. 1-Apr. 10	14		
Oran	Mar. 21-Apr. 20	31		
Angola	Oct. 1-15			Present in Congo district.
Congo	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange	Feb. 2-15	2		
Arabia:				
Aden	Dec. 12-18	1		Imported.
Do	Apr. 3-9	1		
Belgium	Oct. 1-10	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Brazil:				
Bahia	Oct 30-Dec. 18	12	8	
Para	Oct 31-Nov. 6		1	
Do	Feb. 5-12		1	
Pernambuco	Oct. 17-Dec. 25	58	4	
Rio de Janeiro	Year 1926			Cases, 4,033; deaths, 2,180.
Do	Jan. 2-Apr. 16	77	34	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Kenya—				
Nairobi	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2		
Do	Jan. 2-Mar. 5	34	21	
Zanzibar	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do	Feb 26-Mar. 25	131	4	
Bulgaria	Nov. 1-30	1		
Canada	Dec. 5-Jan. 1			Cases, 155.
Do	Jan. 2-May 7			Cases, 624.
Alberta	Dec. 5-Jan. 1	132		
Do	Jan. 2-May 7	248		
Calgary	Nov. 28-Dec. 25	12		
Do	Jan. 2-May 7	38	1	
Edmonton	Dec. 1-31	4		
Do	Jan. 1-Mar. 31	18		
British Columbia—				
Vancouver	Jan. 31-Apr. 24	10		
Manitoba	Dec. 5-Jan. 1	9		
Do	Jan. 2-May 7	24		
Winnipeg	Dec. 19-25	1		
Do	Jan. 2-May 14	13		
New Brunswick	Feb. 13-26	2		
Ontario	Dec. 5-Jan. 1	96		
Do	Jan. 2-Apr. 30	289		
Kingston	Jan. 1-Feb. 19	3		
Ottawa	Dec. 12-31	5		
Do	Jan. 9-May 7	11		
Toronto	Dec. 14-25	14		
Do	Jan. 1-May 7	92	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do	Jan. 2-May 7	64		
Regina	Jan. 16-22	1		
Chile:				
Concepcion	Dec. 26-Jan. 1		5	
Iquique	Mar. 1-15	2		
China:				
Amoy	Jan. 1-Mar. 26	8		
Antung	Mar. 21-27	1		
Canton	Nov. 1-Dec. 31	6		
Chefoo	Jan. 23-Apr. 9			Present.
Chungking	Nov. 7-Dec. 25			Do.
Do	Jan. 2-Mar. 19			Do.
Foochow	Nov. 7-Dec. 25			Do.
Do	Feb. 27-Apr. 2			Do.
Hankow	Nov. 6-30			Do.
Hong Kong	Jan. 23-Apr. 2	121	81	
Manchuria—				
An-shan	Mar. 21-Apr. 16	4		
Dairen	Feb. 20-Apr. 3	23	6	
Harbin	Dec. 16-31	3		
Do	Feb. 7-13	1		
Kai-Yuan	Mar. 20-27	2		
Mukden	Dec. 5-11	1		
Do	Apr. 3-9	1		
Tiehling	do	1		
Nanking	Dec. 12-25			Do.
Do	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do	Jan. 20-Apr. 9	2	2	
Swatow	Nov. 21-27			Do.
Do	Mar. 27-Apr. 9			Do.
Tientsin	Jan. 16-Apr. 2	27		
Do	Apr. 3-9	6	1	
Chosen	Aug. 1-Nov. 30	53	19	
Do	Jan. 1-31	98	21	
Seoul	Nov. 1-30	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Egypt:				
Alexandria	Jan. 8–Apr. 8	2		
Cairo	June 11–Aug. 26	27	4	
Estonia	Oct. 1–30	2		
France	Sept. 1–Dec. 31	293		
Paris	Dec. 1–31	10	3	
Do	Jan 1–Apr. 20	29	4	
French Settlements in India	Aug. 29–Jan. 1	127	127	
Do	Jan. 2–Feb. 20	58	58	
French Sudan:				
Kita	Mar. 28–Apr. 3			Present.
Germany:				
Stuttgart	Nov. 28–Dec. 4	7		
Gold Coast	Aug. 1–Nov. 30	59	14	
Do	Jan. 1–31	5	1	
Great Britain:				
England and Wales	Nov. 14–Jan. 1			Cases, 2,262.
Do	Jan. 2–Apr. 23			Cases, 7,263.
Birmingham	Mar. 13–19	5		
Bradford	Jan. 9–Apr. 23	6		
Cardiff	Feb. 13–19	1		
Leeds	Mar. 27–Apr. 16	2		
London	Reported Apr. 28	6		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5–13	2		
Do	Jan. 2–Apr. 30	22		
Normanton	Dec. 30	1		9 miles from Leeds
Sheffield	Nov. 28–Jan. 1	60		
Do	Jan. 2–Apr. 30	554	1	
Wakefield	Jan. 30–Feb. 2	2		
Scotland—				
Dundee	Mar. 31–Apr. 30	113		
Greece	Nov. 1–Dec. 31	25		
Athens	Dec. 1–31	14	2	
Do	Mar. 1–31	9	2	Including Piræus.
Saloniki	Mar. 8–14		1	
Guatemala:				
Guatemala City	Nov. 1–Dec. 31		15	
Do	Jan. 1–Mar. 31		74	
India	Oct. 10–Jan. 1			Cases, 22,946; deaths, 6,006.
Do	Jan. 2–Feb. 26			Cases, 37,824; deaths, 9,029.
Bombay	Nov. 7–Jan. 1	37	20	
Do	Jan. 2–Apr. 2	578	312	
Calcutta	Oct. 31–Jan. 1	449	311	
Do	Jan. 2–Apr. 9	2,414	1,776	
Karachi	Dec. 19–25	1	1	
Do	Jan. 2–Apr. 16	43	26	
Madras	Nov. 21–Jan. 1	32	2	
Do	Jan. 2–Apr. 9	294	11	
Rangoon	Nov. 28–Jan. 1	2	2	
Do	Jan. 2–Apr. 2	309	71	
Indo-China:				
Saigon	Dec. 26–Jan. 1	3		
Do	Feb. 6–Mar. 12	2		
Iraq:				
Baghdad	Oct. 31–Dec. 4	7	4	
Do	Jan. 23–Apr. 2	7	1	
Basra	Nov. 7–13	2	1	
Do	Mar. 20–26			
Italy	Aug. 29–Jan. 1	28		
Do	Jan. 2–Feb. 26	4		
Genoa	Dec. 30–31	1		
Do	Jan. 1–10	2		
Jamaica	Nov. 26–Jan. 1	37		Reported as alastrim
Do	Jan. 2–Apr. 30	128		Do.
Japan	Oct. 24–Jan. 1	27		
Do	Jan. 2–Feb. 26	61		
Kobe	Nov. 14–20	1		
Do	Jan. 23–Apr. 2	3		
Sasebo	May 8–14	3		
Yokohama	Nov. 27–Dec. 3	2		
Do	Mar. 26–Apr. 1	3		
Java:				
Batavia	Nov. 29–Dec. 3	2		Province.
Do	Mar. 13–19	1		
East Java and Madura	Oct. 24–Dec. 25	11	1	
Do	Jan. 2–27	4	3	
Lithuania	Nov. 1–30	2		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Dec. 31		799	
Chihuahua	Dec. 31			Several cases; mild.
Do	Jan 31-Feb. 6			Present
Ciudad Juarez	Dec 14-27		2	
Manzanillo	Mar 5-Apr. 25	7	5	
Mazatlan	Feb. 14-Apr. 17		3	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do	Dec. 26-Apr. 30	9		Do
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported
Piedras Negras district	Feb. 25	68		At Nueva Rosita
Saltillo	Feb. 6-Apr. 9		2	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do	Jan. 9-May 7		28	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Borneo, epidemic in two villages.
Do	Feb. 7-28			Epidemic in 6 localities.
Nigeria	Aug.-Dec. 31	163	40	
Do	Jan. 1-31	96	12	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do	Jan. 2-Apr. 23	37		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do	July 1-Sept. 30	884		
Do	Nov. 1-Dec. 31	1,815		
Senegal:				
Dakar	Jan. 9-Apr. 3	4		
Gueudel	Apr. 11-17	1		
Kebener	do	1		
Niger Colony	Apr. 1-20	3		
Ouakam	Mar. 20-27	4		Vicinity of Dakar.
Tivaouane	Apr. 11-17	2		
Siam	Apr.-Jan. 1			Cases, 711; deaths, 265.
Do	Jan. 2-Apr. 2			Cases, 102; deaths, 43.
Bangkok	Oct. 31-Jan. 1	28	10	
Do	Jan. 2-Apr. 2	45	28	
Sierra Leone:				
Makeni	Feb. 22-28	3		
Nanowa	Dec. 1-15	1		Pendembu district.
Spain	July 1-Oct. 31		15	
Valencia	Feb. 8-Apr. 30	11		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do	Jan. 2-Feb. 26	4	3	
Tunisia	Oct. 1-Dec. 31	9		
Do	Jan. 1-Mar. 20	23		
Tunis	Jan. 1-Mar. 10	3		
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from date of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do	Jan. 1-31	3		

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Algeria	Sept. 21-Dec. 20	59	2	
Do	Jan. 1-Mar. 20			Cases, 210; deaths, 11.
Algiers	Feb. 1-Apr. 10	46		
Oran	Mar. 21-Apr. 20	8		
Angola:				
Benguela district	Feb. 16-28	1		
Argentina:				
Rosario	Dec. 1-31		1	
Do	Jan. 25-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Do	Jan. 1-Feb. 28	12	5	
Sofia	Apr. 16-22	1		
Chile	Sept. 15-Nov. 15	39	4	
Chillan	Jan. 1-31	4	3	
Concepcion	Sept. 15-Nov. 15	1		
Do	Jan. 23-29		1	
Iquique	Apr. 3-9		1	
Lebu	Sept. 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	Sept. 15-Dec. 31	25	2	
Do	Feb. 1-28	3		
Valparaiso	Sept. 15-Dec. 25	10		
Do	Jan. 2-Apr. 16	6	2	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Do	Feb. 27-Mar. 12			Do.
Chosen	Aug. 4-Dec. 31	54	5	
Do	Jan. 1-31	65	10	
Chemulpo	Mar. 1-31	5		
Seoul	Nov. 1-30	1		
Do	Jan. 1-Mar. 31	10	2	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do	Jan. 1-Mar. 31	83	3	
Egypt:				
Alexandria	Dec. 3-9		1	
Do	Jan. 22-Apr. 7	5	2	
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do	Jan. 1-Mar. 31	14		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do	Feb. 1-Mar. 31	17	3	
Drama	Dec. 1-31	2		
Kavalla	do	2		
Patras	Jan. 23-29		1	
Ravokan	Dec. 1-31	1		
Saloniki	Jan. 25-31	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Indo-China:				
Tonkin	Aug. 1-31	2		
Iraq:				
Baghdad	Mar. 6-19	2	2	
Ireland:				
Clare County—				
Tulla district	Jan. 9-15	1		Suspect.
Donegal County—				
Letterkenny	Mar. 27-Apr. 30	6		Rural district.
Milford	Mar. 27-Apr. 3	3		
Italy	Aug. 29-Sept. 23	3		
Do	Jan. 16-Feb. 26	15		
Japan	Jan. 2-29			Cases, 2.
Tokyo prefecture	Dec. 5-25	9		
Tokyo City	do	5	1	
Latvia	Jan. 1-31	2		
Lithuania	Sept. 1-Dec. 31	41	4	
Do	Jan. 1-31	24		
Mexico	July 1-Dec. 31			Deaths, 604.
Aguascalientes	Jan. 9-Feb. 5	2		
Durango	Jan. 1-31		1	
Guadalajara	Jan. 25-31		1	
Mexico City	Dec. 5-11	3		Including municipalities in Federal District.
Do	Jan. 2-Apr. 23	96		Do.
Parral	Jan. 30-Feb. 5	1		
Morocco	Apr. 9			Present.
Marrakech	do			Do.
Mogador	do			Do.
Nigeria	Sept. 1-30	1		
Palestine	Apr. 12-15	3		
Acre	Dec. 29-Jan. 3	1		
Beisan	Dec. 21-27	1		
Haifa	Nov. 23-Dec. 13	5		
Do	Dec. 28-Feb. 7	7		
Jaffa	Nov. 23-Dec. 27	7		
Do	Jan. 11-Feb. 21	3		
Majdal	Dec. 28-Jan. 3	1		
Do	Apr. 5-11	1		
Nazareth	Nov. 16-Jan. 3	12		
Do	Mar. 1-7	1		
Ramleh	Jan. 31-Feb. 7	1		
Safad	Dec. 21-Jan. 3	2		
Peru:				
Arequipa	Year, 1926		9	District.
Lima	Jan. 1-31		1	
Poland	Oct. 11-Dec. 25			Cases, 341; deaths, 27.
Do	Jan. 1-Mar. 12			Cases, 825; deaths, 68.
Rumania	Aug. 1-Nov. 30	255	11	
Do	Jan. 1-31	391	31	
Russia	May 1-June 30	6,043		
Do	July 1-Aug. 31	3,060		
Do	Nov. 1-Dec. 31	4,609		
Spain	July 1-Sept. 30		4	
Seville	Mar. 16-22		1	
Syria:				
Aleppo	Mar. 13-19	1		
Tunisia	Oct. 1-Dec. 27	30		
Do	Jan. 1-Mar. 20	141		
Tunis	Jan. 21-Mar. 31	4		
Do	Reported Apr. 13	3		
Turkey:				
Constantinople	Dec. 12-25	3		
Do	Jan. 16-22			1 death reported by press.
Union of South Africa	Oct. 1-Dec. 31			Cases, 233; deaths, 30.
Cape Province	do	47	7	
Do	Jan. 1-Feb. 28	51	4	
Do	Mar. 13-19			Outbreaks.
Clydesdale	Mar. 6-12			Do.
East London	Nov. 21-27	1		Native. Imported.
Port St. Johns district	Dec. 5-11			Outbreaks. On farm.
Xalanga district	Mar. 20-Apr. 2			Outbreaks.
Natal	Oct. 1-31	1		
Do	Jan. 1-31	6		
Do	Mar. 27-Apr. 2			Do.
Orange Free State	Oct. 1-Dec. 31	31	2	
Do	Jan. 1-Feb. 28	17	3	
Do	Mar. 13-19			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from January 1 to May 27, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Transvaal	Oct. 1-31	1		
Do	Jan. 1-31	1		Native.
Yugoslavia	Nov. 1-Dec. 31	30	2	
Do	Jan. 1-Mar. 31	74	4	

YELLOW FEVER

Place	Date	Cases	Deaths	Remarks
French Sudan	Dec. 19-25	1	1	
Gold Coast	Aug. 1-Nov. 30	10	5	
Do	Jan. 1-31	17	7	
Nigeria	Sept. 1-Nov 30	4	3	
Do	Jan 1-31	1	1	
Senegal	Dec 19-25	3	3	
Diourbel	Dec. 6	1	1	
Do	Jan. 1-20	1	1	At N'Bake.
Guinguineo	Dec 7	1	1	
Rufisque	Nov 27-Dec. 29	2	1	In European.
Do	Jan. 2-8	3	3	
Upper Volta:				
Gaoua district	Oct. 25	2		

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TREASURY DEPARTMENT

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UNITED STATES
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1927

UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, *Surgeon General*

DIVISION OF SANITARY REPORTS AND STATISTICS

Asst. Surg. Gen. C. C. PIERCE, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics, pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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PUBLIC HEALTH REPORTS

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DRINKING WATER COOLERS ON COMMON CARRIERS

By Arthur P. Miller, *Associate Sanitary Engineer, United States Public Health Service*

The danger connected with the human consumption of polluted drinking water has long been recognized, and for many years water has ranked of first importance as a carrier of disease. Water in frozen form has similar possibilities as a disease spreader and, therefore, it should also be the given consideration commensurate with the inherent danger. Much sickness has been attributed to the failure to control properly the quality of ice, but this is not surprising when it is considered that ice is frequently taken into the stomach either in its natural state or after melting and being mixed with some other food or drink. Even though the quality of ice may be beyond reproach directly after it is manufactured or harvested, the manner in which it is handled during transportation from the warehouse to the ultimate point of consumption may nullify all of the effort put forth to produce a good and pure product.

The importance of pure ice and its proper and sanitary handling and their relationship to pure drinking waters on cars and vessels operating in interstate traffic was first taken under official consideration when the 1894 issue of the interstate quarantine regulations was revised. This finished revision was published in 1916 and contained the following paragraph on this subject:

Section 13: (*b*) Ice used for cooling such water shall be clear natural ice or ice made from distilled water or water certified as aforesaid, and before the ice is placed in the water it shall be first carefully washed with water of known safety, and handled in such manner as to prevent its becoming contaminated by the organisms of infectious or contagious diseases: *Provided*, That the foregoing shall not apply to ice which does not come in contact with the water which is to be cooled.

This provision represented a step forward, but it was insufficient. It was obvious that under this regulation many efficient and understanding common carriers would exercise the utmost precaution to keep their ice, and consequently, the drinking water, on their conveyances, pure, but that also many would fail to do so. Even though the strictest orders concerning handling and cleansing ice might be issued from the headquarters of a carrier, still there would always be the possibility that careless or shiftless employees might fail to carry out such orders either intentionally or by mistake. Such action unquestionably would result in the contamination of the ice, and,

after it had been placed in the cooler, of the water also. Under this provision there always existed that weak link in the chain of furnishing pure water in the form of a partially uncontrollable personal factor; and, therefore, when the regulations next were revised, this section again was changed.

In May, 1921, the next revision of the interstate quarantine regulations appeared and the matter of contaminating drinking water by inserting in it impure or dirty ice was covered in the last sentence of paragraph d, section 19, reading as follows:

> Water cooled for drinking purposes shall be cooled in such manner that ice can not come into contact with such water.

This was a positive statement and left no recourse to the carriers except to replace or rebuild such water coolers as were of a design which would permit an intermingling of the water and the ice used for cooling it. The Public Health Service is charged with the duty of preventing the interstate spread of disease, and this regulation was considered a suitable means of contributing to the execution of this duty and of guaranteeing the adequate protection of the health of the traveling public so far as water-borne diseases are concerned.

Enforcement of this provision of the 1921 regulations did not begin until November 16, 1922, at which time the following letter was sent by the Surgeon General to all railroads then falling within the scope of these regulations:

To Railroad Officials:

Your attention is invited to the fact that the requirement of the revised Interstate Quarantine Regulations of the United States, that water used by common carriers for drinking and culinary purposes on cars shall be cooled in such manner that ice can not come in contact with the water, will be strictly enforced in the case of all new equipment placed in use by common carriers. In regard to present equipment this requirement, however, will not be strictly enforced until July 1, 1924, by which time the carriers will be expected to have made the necessary improvements on all equipment now in use.

In order that proper records may be kept of the installation of separate ice and water compartment coolers on all cars having coolers, it is requested that the following information be furnished the Surgeon General of the United States Public Health Service at the earliest possible date:

Cars in use	Total number	Number with old type coolers	Number with separate compartment ice and water coolers
Coaches			
Cabooses and other freight			
All others [1]			

[1] In this group should be included dining, café, club, passenger-baggage, passenger-baggage-mail, baggage, baggage-mail, officers, lunch, parlor, passenger-mail, express, express refrigerator, chair, kitchen, business, sleeping, milk, tourist, and colonist, etc., except cars used only for mail. INSERT THE WORD "NONE" IN EACH SPACE WHERE NECESSARY.

Have separate compartment ice and water coolers been ordered to replace old type coolers?

Similar information will be requested on July 1, 1924, and July 1, 1925.

This step was not taken until its effect on the country's railroad system was considered carefully and only after advice had been requested from such organizations as the American Railway Association, which is vitally interested in all matters affecting its membership. It is to be noted that this first circular letter stressed the point that this provision in the regulations would be enforced at once in the case of all new equipment, but that the work of changing old equipment would not have to be completed until July 1, 1924.

After the circular letter of November 16, 1922, had been sent out, there was seen to be a lack of exact knowledge among the railroads as to what types of cars were affected by this provision. To explain several of these details another circular letter was sent on March 12, 1923. This letter read as follows:

To Railroad Officials:

With reference to the attached Bureau Circular Letter of November 16, 1922, regarding water coolers on cars, your attention is invited to the following points:

(1) The Interstate Quarantine Regulations of the United States do not require that any or all rolling equipment shall be provided with drinking water containers; that is left to the railroads as a matter of operation.

(2) The Regulations, furthermore, do not require that water be cooled; that, also, is left to the railroads as a matter of operation.

(3) The Regulations do provide, however, that where water containers are supplied on cars by the railroad management as standard equipment, they should be in accordance with the requirements; in other words, the containers should be so arranged that ice can not come in contact with the water.

(4) When cars are used for camp cars, or for construction units, such cars are considered from an administrative viewpoint as being on the same status as homes and, accordingly, not subject to the cooler requirements. Locomotives are placed in the same class.

(5) In order that definite and complete information may be available to the Bureau, either a number or the word "None" should be inserted in the table on the attached circular letter opposite each class of car and in each column.

(6) PLEASE RETURN ONE COPY OF THE CIRCULAR LETTER OF NOVEMBER 16, 1922, PROPERLY FILLED OUT IN EVERY RESPECT.

The two letters reproduced above brought from railroad companies a large number of plans which were carefully reviewed, and in each case an attempt was made to point out to the submitting carrier the defects of the design, or, if the design was satisfactory, so to advise the carrier submitting it.

To maintain an interest in this work and to obtain advice as to its progress, there was forwarded to all railroads, on September 15, 1923, another circular letter, which was of the same form as that sent to them on November 16, 1922. The inquiries and plans received up to that time from the carriers suggested that a clear outline of some of

the more desirable features of proper cooler design was needed. Therefore a circular letter, printed below, was prepared on this subject and transmitted to them with the circular letter of September 15, 1923:

WATER COOLERS ON TRAINS

To Railroad Officials:

For your information in considering designs for new, or changes in present, drinking-water cooler equipment for railroad cars, to comply with the Interstate Quarantine Regulations of the United States, I wish to invite your attention to the following paragraphs:

WATER SYSTEMS FOR RAILROAD CARS.—From a careful study of the various water systems for railroad cars, it would seem that both from the standpoint of public health and from that of railroad safety and economy, the gravity system and the pressure system having closed storage tanks which are filled from outside and underneath the cars afford the best protection against contamination of the water. It is preferable that the drinking-water storage tanks be separate from all other water tanks on the car; but if water from certified sources of supply can be obtained at convenient intervals, there is no objection to a common storage tank for the entire water supply system aboard. The outside underneath connection on the car through which water is supplied to the storage tank should be on the opposite side of the car from the toilet outlet, so that when the hose connections are made the danger of polluting the hose or pipe ends by toilet discharges may be eliminated. It is realized that on old equipment it may not be practicable to install gravity or pressure storage tanks, but it is desirable that all new cars should be so equipped.

DRINKING WATER COOLERS.—With the gravity or pressure system, the water compartment of a cooler should be entirely closed except for the inlet, the drain, and the spigot connections. Coolers watered by a pail or a hose from inside the car should have as small an opening to the water compartment as will accommodate the discharge nozzle of the filling device. To prevent insertion of the hose or the container nozzle into the water compartment, the opening to same should be obstructed by a coarse wire or a perforated plate. The cover to the funnel or filling attachment at the opening to the water compartment should be tight fitting, self-closing, and difficult for unauthorized persons to open. Covers to water compartments should be fixed so that they can not be removed except for repair purposes.

The coolers should have separate inlets to the ice and water compartments. Where a common entrance is provided, as on many of the old type two-compartment coolers, ice is frequently put in both compartments, either through intent or by mistake. A door in the front for icing and a small opening at the top for watering are simple and convenient arrangements for coolers supplied by pail or hose from inside the car. Icing from overhead is dangerous and expensive.

Both the water and ice compartments of coolers should be equipped with drains of sufficient size to insure rapid draining when the compartments are flushed and rinsed weekly. Obviously drains should be at the bottom of the compartments, and valves to same should be conveniently accessible. The spigot in the front of a cooler is not adequate for draining purposes. A siphon in the ice compartment may prove practicable, especially on trains operated in cold climates. With intermittent discharging of melted ice water instead of the continuous drip, the opportunity for the formation of icicles on the discharge line under the car, which may clog it, is lessened.

It is believed that some sort of false bottom should be provided for the ice compartment to take up the impact when chunks of ice are dropped in and to prevent straining of the joint between the water and ice compartments. The shaving of ice instead of cutting in chunks is said to be a more convenient method of handling as well as more economical.

In drawing up specifications for coolers, much attention should be given to the material used and to the quality of workmanship. As much of the ice purchased by railroads is made from distilled water which has solvent properties, careful consideration should be given to the materials of which the coolers are constructed. It is believed that, as far as possible, the joints should be overlapping and well soldered. At places subject to strain, reinforcement by rivets, together with soldering, is desirable.

It is recommended that, before contracts are let for coolers, blue prints showing the proposed design of same be submitted to the Public Health Service for review.

That the issuance of this last letter of explanation was successful was immediately demonstrated by the railroads; for, during the last few months of 1925, a large number of plans were forwarded to the Public Health Service for review and approval. These plans showed that the carriers were glad to follow out the suggestions given them and that they were willing to cooperate in rebuilding old coolers for the sake of the public health. Incidentally, the appeal of increased operating economy through ice saving should not be overlooked in this connection. Reviewing the plans submitted by the companies wishing constructive criticism was a task of some magnitude for the personnel available, because there were received approximately 500 different plans of water coolers. These plans are now all carefully filed and indexed and can be referred to at any time.

The expense of remodeling old coolers had to be considered carefully by many companies whose income at that time was barely equal to operating expenses, and hence it was thought to be highly advisable to avoid the necessity of changing coolers in the future. To reach this end, the assistance and coöperation of all car and cooler building companies were sought. In the case of the car-building companies, the entire program as planned by the Public Health Service was placed before them and their cooperation was enlisted in installing only water coolers of satisfactory design on all cars then being built and those to be built in the future. These companies agreed with the principles given to them and changed their plans so that they would be in accord with the specifications suggested.

Manufacturers of water coolers were even more generous in their proffer of cooperation. They transmitted their revised plans for approval before offering for sale the products of their factories. In that way corrections were made in the plans before the coolers were built, which procedure unquestionably reacted favorably toward the objective of the Public Health Service and was without doubt instrumental in increasing the sales of these companies, because they

were able to offer to railroads designs of coolers which already had been drawn to meet the necessary specifications. Several companies engaged in this kind of manufacturing not only revised their plans but went so far as to assist in explaining the value of the new style cooler to the railroads, pointing out the advantages from the standpoint of public health and also from that of economy.

Before this program was long under way the question of jurisdiction over cars used exclusively for mail purposes arose. The Public Health Service collaborated with the Railway Mail Service in revising its specifications so that the cooler requirements would be practically the same for all cars, and set forth the policy that such cars were entirely under the control of the latter service.

In the circular letters sent out on November 16, 1922, and September 15, 1923, data were requested which would indicate the progress being made in the remodeling of existing unsatisfactory coolers. The information obtained in response to these letters was far from complete and was not of such character as to permit a complete analysis of it. Of the 621 letters sent out on November 16, 1922, replies were received from 399, or 64 per cent. These replies showed, in accordance with the classification given in that letter, that there were still 46,985 single-compartment coolers of the old style being used, and that 28,698 coolers conformed to the requirements of the Interstate Quarantine Regulations. In other words, out of a total of 75,685 coolers reported upon, 38 per cent were of satisfactory construction. On September 15, 1923, letters were sent to 620 railroads, and of that number, 325, or 52 per cent, replied. This time the carriers reported on 49,182 coolers and the replies indicated that of these, 24,581, or 50 per cent, were of an approved design. Although the number of companies heard from in the second report was less than that in the first, and the total number of coolers reported upon was smaller, the increase in the percentage of coolers of satisfactory design was from 38 to 50 per cent. This indicated that the railroads were making considerable progress toward compliance with the regulations.

The expiration of the time for completing the remodeling of old coolers had been set for July 1, 1924. Before that date a number of companies had made representations to the Public Health Service to the effect that it would be impossible for them to complete the work by that time. The Public Health Service realized that this work had to be done as cars were shopped for major repairs or routine overhauling, and that to change this accepted plan of work would bring about a hardship on the railroads by disorganizing their regular traffic plans. Therefore, on June 30, 1924, an extension of time until January 1, 1925, was granted. This was done with a full and complete understanding that no additional time would be allowed.

Two months before the expiration of the time, or on November 1, 1924, another brief letter was sent to the railroad companies stating that the time limit would expire on the first of the year 1925.

From November 1, 1924, until October 1, 1925, no further action was taken relative to obtaining progress reports; but on the latter date a circular letter, with a table attached, was forwarded to each railroad then falling within the scope of the Interstate Quarantine Regulations. This letter asked for a report on the completeness with which cars had been provided with satisfactory types of coolers and transmitted with it were blank forms on which the report was to be made. The form classified the conveyances as coaches, cabooses, other passenger equipment, and other freight equipment, and for each of these classes the following data were requested:

(1) Number of class reportable.
(2) Total number of coolers regardless of style of construction on cars of class.
(3) Number of coolers on cars of class satisfactorily constructed.
(4) Number of coolers on cars of class yet to be constructed satisfactorily.

This letter was intended to be the last request for data on the completeness of this work, and at the time of this writing it has been proved to be all that was necessary. A few carriers have not as yet furnished their statement, but each of these will be handled as an individual case.

Analyzing a tabulation of the final reports on this work, it is found that a total of 563 railroads were circularized, and that of this number, 32, or less than 6 per cent, failed to submit any report whatsoever. However, an examination into these nonreporting railroads shows that each of them has but a very short mileage and, consequently, can have but few reportable cars. It is possible also that some of these companies have ceased to operate since the inception of this work, although the Public Health Service has not as yet been able definitely to ascertain that such is the case. Of the companies reporting, 112 were found to be without the province of the work and consequently can be disregarded. This status for these companies was determined by noting the following on their reports: Forty-six stated that no drinking or culinary water was placed on their cars, and hence no coolers were needed; 43 advised that no ice was used for cooling and that the necessity for remodeling coolers therefore did not exist; and the remaining 23 reported that their lines had been abandoned or that their cars were leased and that reports on them would be covered by the parent company, or gave some similar but valid reason for furnishing no data.

A consolidation of all the data given by the railroads reporting shows the following:

Number of cars reportable	69, 414
Total number of coolers regardless of style of construction on cars	101, 684
Number of coolers on cars satisfactorily constructed	97, 670
Number of coolers on cars yet to be constructed satisfactorily	4, 014

The incompleted work represented by the total, 4,014, was distributed over 56 railroads in the following manner:

Nine companies, each of which reported over 100 coolers, stated that on their equipment 22,694 coolers were carried, and of these there remained 3,533, or 16 per cent, to be remodeled.

Forty-seven companies, each reporting less than 100 coolers, carried on equipment 5,491 coolers, of which 481, or 9 per cent, still had to be rebuilt. Varying percentages of incompleteness in this work were found up to the maximum, in the case of one company, of 44; but it is obvious that the largest amount of incomplete work can be traced to the group of nine companies mentioned above.

From the above tabulation it would appear that the coolers still to be satisfactorily constructed comprise 3.9 per cent of all those reportable. An analysis of this figure, however, shows that this is not exactly the case. Of the number reported, 2,684 can be disregarded, since they were on cars which had been retired from active service and which, if ever used again, would need extensive reconditioning, or which since have been reported as having been remodeled. This leaves but 1,330 coolers which, at the date of this writing, have not been reported as having been rebuilt to conform with the provisions of Interstate Quarantine Regulations. This low figure represents 1.3 per cent of the total number of coolers reported as existing on cars operating in interstate traffic. It is believed that inquiry at the present time into the status of the few coolers reported during this survey as not being usable under the Interstate Quarantine Regulations will now show them to have been rebuilt.

Field personnel of the Public Health Service have been making inspections from time to time of coolers on cars in transit or in coach yards, and, with a few exceptions, those found in use were designed satisfactorily. Field work of this character will be continued. In addition, this entire program will be carried on until assurance is had that all common carriers have completed their individual quota of work.

THE AGE CURVE OF ILLNESS[1]

Hagerstown Morbidity Studies No. IV

By EDGAR SYDENSTRICKER, *Statistician, United States Public Health Service*

Records of sickness collected in the United States since the interest of sanitarians and actuaries in this development of vital statistics was aroused some 10 years or more ago are confined almost entirely to special groups of individuals or to special types and causes of illness. This limitation is a natural and justifiable one for the reason that sickness data were needed for specific purposes. Thus, a large volume of disability experience for persons employed in industrial establishments has been made available from records of sick-benefit organizations and industrial medical service and in the course of studies of industrial hazards; a beginning has been made in recording the illnesses from various causes among children at school as an aid to better school hygiene administration, as well as for purposes of research; the notification of communicable diseases has been considerably improved; and comprehensive and illuminating sickness surveys have been made by various agencies and organizations. With the exception of certain surveys, notably those made by the Metropolitan Life Insurance Co., the records of sickness do not extend to the entire range of age nor to persons not at school or not employed. Moreover, these surveys recorded only the *prevalence* of sickness due to various causes at a given date and throw little light on the frequency or *incidence* of sickness among persons of different ages and sexes who constitute the general population. Some of these limitations may be said to apply to the well-known sickness experience of the Leipzig Local Sick Fund and of the other European insurance systems.

One of the principal purposes of the morbidity study conducted in Hagerstown, Md., was to determine the frequency of sickness among persons in a fairly typical population of different sexes and ages, and thus to make a small contribution of the kind the desirability of which is indicated by the considerations mentioned above. The scope and method of this study have been set forth rather fully in the general report already published (1); but, since we are dealing with groups of persons of different sexes and ages, Table 1 is intro-

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[1] From the Office of Statistical Investigations, U. S. Public Health Service. Other Hagerstown morbidity studies published are—

I. A Study of Illness in a General Population Group: Method of Study and General Results. Pub Health Rep., vol. 41, No. 39, Sept. 24, 1926. (Reprint No. 1113.)

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub. Health Rep., vol. 41, No. 41, Oct. 8, 1926. (Reprint No. 1116.)

III. The Extent of Medical and Hospital Service in a Typical Small City. Pub. Health Rep., vol. 42, No. 2, Jan. 14, 1927. (Reprint No. 1134.)

duced to show the size of the experience in each sex and age group upon which the results presented in this particular communication are based.

TABLE 1.—*Number of white persons observed for the incidence of illness in Hagerstown, Md., December 1, 1921–March 31, 1924, expressed in terms of "years of life observed," and classified by sex and age*

Age, in years	Number of years of life observed		
	Both sexes	Males	Females
All ages [1]	16,517	8,001	8,516
0–4	1,777	942	835
5–9	2,105	1,093	1,012
10–14	1,713	846	867
15–19	1,389	677	712
20–24	1,136	523	613
25–29	1,236	545	691
30–34	1,235	581	654
35–44	2,171	1,038	1,133
45–54	1,676	822	854
55–64	900	428	472
65 and over	810	346	464

[1] Includes population of unknown age.

Although the majority of the population was observed throughout the period of the study, certain portions were observed for less than the entire period. The period of the study itself was 28 months, or approximately two and one-third years. In order, therefore, to state the results in terms of annual incidence rates it was necessary to resort to the familiar device of expressing the population as the number of "year-persons," or the number of "years of exposure," or, to state it more precisely, perhaps, the number of "years of life observed" within each sex-age category. The age groups are those commonly employed and include not less than 346 years of observation in any instance.

For the individuals comprising the various sex-age groups, records of illnesses were obtained during the period from December 1, 1921, through March 31, 1924. The definition of "illness" has already been discussed in a previous report, so that it is not necessary to elaborate upon it here. Briefly, the "illness" recorded was nothing more than that which is commonly understood by the word; the informants in the households regularly canvassed were questioned as to the illnesses which they had suffered and had observed in the members of their families during the preceding period of six to eight weeks. A considerable number of these illnesses were of short duration, but the great majority lasted more than two days; about 40 per cent of them not only caused disability, but resulted in confinement in bed.

Definitions of the terms "illness," "sickness," "morbidity," etc., obviously vary so much that it is very difficult to render comparable the results of different surveys and records, and perhaps the main

value of the data presented in this article lies in the fact that the records cover the entire span of life instead of being restricted to certain periods, as has been the case in other morbidity records. It is fair, also, to claim another distinctive merit for the data here presented, namely, that the individuals composed a general population group of persons not only at work and at school but also at home; it included invalids as well as those who were actively engaged in their occupations, and babies and children of preschool age as well as persons too old to engage in ordinary occupations. So far as the present investigators are aware, this is the first time that a morbidity age curve for the entire span of life in an ordinary population has been rendered available. The extensive sickness surveys made some years ago by the Metropolitan Life Insurance Co. were on a general population group, it is true; but it should be kept in mind that those studies were on the *prevalence* of sickness rather than on the *incidence* of sickness, and that some selection as to the class of population observed was probably made by virtue of the fact that industrial policyholders and their families were canvassed. Furthermore, the experience is not published in detail for the age period under 15 years of age. It is believed that the present study will supplement those excellent surveys in certain important respects.

In Table 2 the morbidity rate per 1,000 years of life observed is shown for each age group, and the rates have been plotted in Figure 1.

TABLE 2.—*Incidence of illness from all causes among a group of white persons observed in Hagerstown, Md., December 1, 1921–March 31, 1924*

Age, in years	Annual rate per 1,000	Number of illnesses	Age, in years	Annual rate per 1,000	Number of illnesses
0–4	1,588	2,822	30–34	920	1,130
5–9	1,554	3,270	35–44	924	2,006
10–14	1,187	2,634	45–54	1,009	1,691
15–19	764	1,062	55–64	950	863
20–24	712	809	65 and over	1,080	875
25–29	825	1,020			

Certain sections of the curve are already familiar. Thus, the records of disabling sickness among industrial workers have shown the gradual rise of morbidity from the ages 15–19 to about 60 years, and records of absenteeism from school on account of sickness have shown the drop in the morbidity rate during the age period 6–16. These variations are reflected in the curve plotted in Figure 1. But, although it was known that among children of school age the frequency of sickness decreased as age advanced, the extraordinarily high incidence of sickness shown in early childhood was a rather surprising result of this study. Illness was far more frequent under 10 years of age than at any other period of life. The sharp drop in

morbidity in the early adult ages was another striking indication, and the interesting suggestion is afforded that the average individual is most free from illness between the ages of 15–24. Thereafter, sickness becomes more frequent as age advances and, it may be added, upon the basis of other studies as well as of our own, sickness becomes

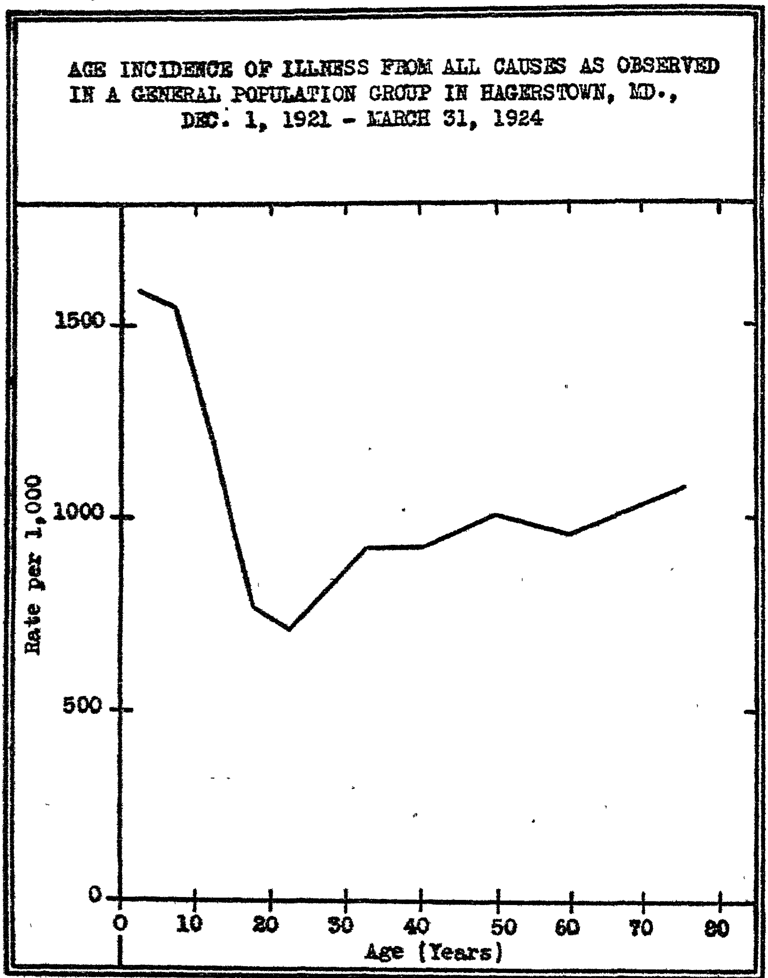

Fig. 1.

more severe and more frequently fatal. The classification of illnesses according to diseases and conditions at different ages, as well as a discussion of the prevalence of defects and diseases and the incidence of death, will be presented in a later paper.

For purposes of comparison, reference may be made to the age incidence of illness as shown by other experience. In Table 3 five series of rates are introduced.

TABLE 3.—*Sickness experience of several European and American societies and studies*

Age, in years	Annual rate per 1,000				
	Leipzig Local Sick Fund, 1887–1905	Manchester Unity Friendly Society, 1893–1897	Three steel manufacturing plants in the United States, 1916–1920	Workmen's Sick and Death Benefit Fund in United States, 1912–1916	Hagerstown, Md., illness study (white persons) Dec. 1, 1921–Mar. 31, 1924
0–4					1,588
5–9					1,554
10–14					1,187
15–19	367	286	162	313	764
20–24	371	245		248	712
25–29	375	235	160	234	825
30–34	400	236		222	920
35–39	420	241	167	225	924
40–44	450	255		231	
45–49	477	271	154	226	1,009
50–54	509	296		237	
55–59	530	337	236	257	959
60–64	587	399		278	
65–69	675	462		302	
70–74	755	606	[2] 238	[3] 235	[3] 1,080
75+	805	[1] 732			

[1] For the age period 75–79. [2] For the age period 65 and over [3] For the age period 70 and over.

The first is the classic experience of the Leipzig Local Sick Fund for the years 1887–1905 (2). This experience differs considerably in essential respects from the Hagerstown experience (*a*) in that a selection by the Leipzig Fund was made of individuals who ordinarily were able to engage in wage-earning occupations,[2] and (*b*) in that a selection was made by the Leipzig Fund of sicknesses that were severe enough to disable the affected persons temporarily. In general, therefore, it is not surprising to note that the Leipzig rates are about one-half the Hagerstown rates. Furthermore, the Leipzig rates show a more rapid increase with age than do the Hagerstown rates, since the disabling sicknesses only are included. Since a larger proportion of sicknesses is disabling as age advances, the total illness rate tends to be similar to the disabling sickness rate in the older ages.[3]

The second experience shown is that of the equally well known Manchester Unity Friendly Society, covering the years 1893–1897 (3). This experience is limited to an even greater degree to severe illnesses than is the Hagerstown study or the Leipzig Fund, and the

[2] The proportion of the total insured who were "voluntary members" and not occupied was small.

[3] It must be kept in mind, however, that we are indulging in some very crude comparisons, since differences in sex, time, and other factors in the two experiences are not taken into account.

curve exhibits a slower rise during the ages 25–54, but a much more rapid rise after 55. The third series of rates is that for sicknesses causing a minimal absence of eight days in three large steel-manufacturing plants in the United States (4). The curve based on these rates

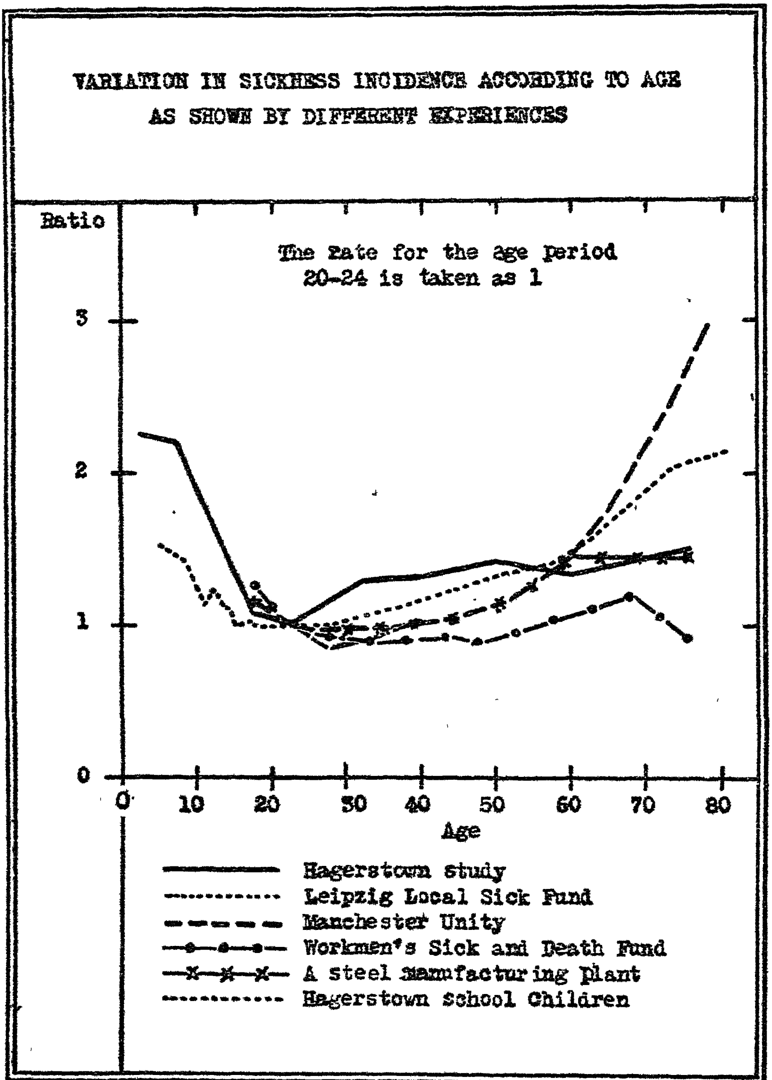

Fig. 2.

follows the Manchester Unity curve very closely except in the older ages; it does not show any considerable acceleration of increase in these ages for the reason that only those able to continue at work retain membership in the sick-benefit fund. Against these may be plotted a fourth curve, that of the sickness rates of the Workmen's

Sick and Death Benefit Fund of the United States of America (5); these apparently include sicknesses of fairly short duration and exhibit the usual rise in the older ages, but the rates in the young adult ages are *relatively* higher than those shown by the other experiences referred to.

Considering the age curves rather than the actual rates, it will be noted that the Hagerstown curve exhibits an earlier rise in the adult

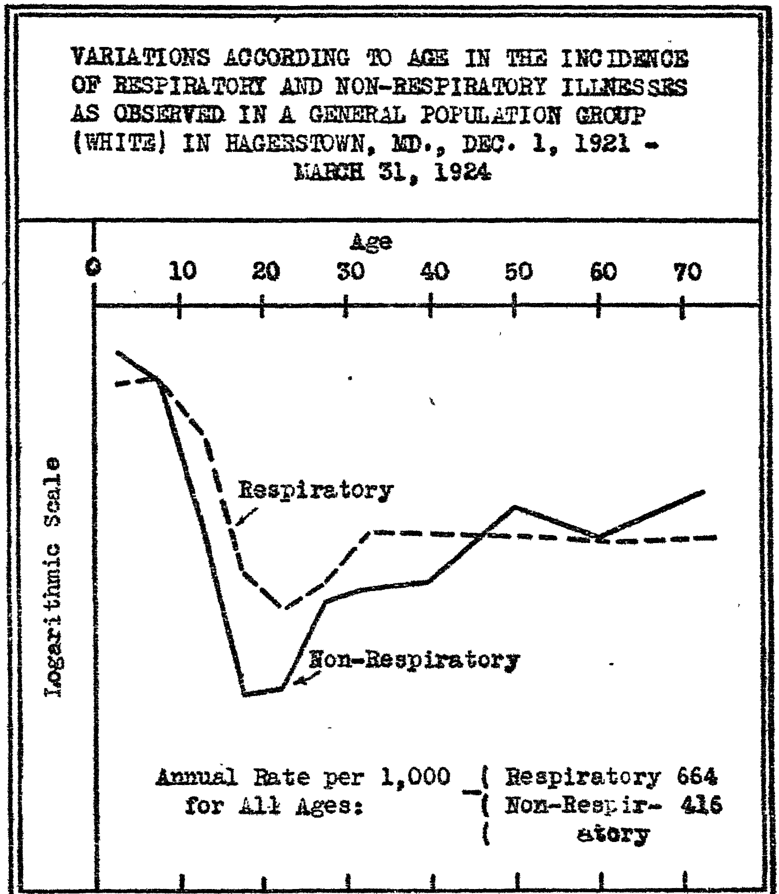

Fig. 3.

ages than do any of the others. This is due chiefly to the inclusion of illnesses of short duration, as will be shown later, among women and among persons not at work.

The high incidence of illness in childhood which is shown by the Hagerstown study is corroborated by the larger experience of the total white school population of Hagerstown which has been presented by Collins (6). It is summarized here in Table 4. Using the rate

for 20 to 24 years as a base, the relative variations have been plotted in Figure 2 along with the other age curves.

TABLE 4.—*Sickness*[1] *rate among white school children of Hagerstown, Md., December, 1921, to May 1923, inclusive*

Age, in years	Rate per 1,000 per school year of 180 school days	Age, in years	Rate per 1,000 per school year of 180 school days
5-6	2,848	12	2,300
7	2,779	13	2,106
8	2,721	14	2,073
9	2,541	15	1,887
10	2,297	16 and over	1,995
11	2,134		

[1] Sickness resulting in absence from school. Data from Morbidity Among School Children in Hagerstown, Md. By Selwyn D. Collins. Pub. Health Rep., Sept. 19, 1924, Reprint No. 957, p. 5. Based on 17,847 school years of exposure

Although it is not intended in this paper to deal with the specific causes and conditions which were responsible for illness at different ages, yet, in view of the fact which has already been set forth in this series that 60 per cent of the illnesses were respiratory, the age curve might be taken as reflecting chiefly the incidence of respiratory diseases and disorders rather than other and perhaps more important causes of morbidity. Hence, it is proper at this point to separate the illnesses into at least two groups—those due to respiratory diseases and conditions and those due to nonrespiratory diseases and conditions. The rates for each of these groups are given in Table 5 and are shown graphically in Figure 3, in which a logarithmic ordinate scale is employed.

TABLE 5.—*Incidence of illness from respiratory and nonrespiratory causes among a group of white persons of different ages observed in Hagerstown, Md., December 1, 1921–March 31, 1924*

Age, in years	Annual rate per 1,000		Number of illnesses	
	Respiratory	Nonrespiratory	Respiratory	Nonrespiratory
All ages [1]	664	416	10,972	6,875
0-4	921	668	1,636	1,186
5-9	935	619	1,967	1,303
10-14	786	402	1,346	688
15-19	525	239	730	332
20-24	467	245	531	278
25-29	507	318	627	393
30-34	589	330	728	408
35-44	587	337	1,275	731
45-54	588	421	985	706
55-64	576	384	518	345
65+	585	495	474	401

[1] Includes "unknown" age.

It will be observed that, in general, variations in the nonrespiratory curve are similar to those of respiratory illnesses; in fact, the variations in the nonrespiratory curve are more pronounced. The age period 15-24 is relatively more free from illnesses due to causes other than respiratory than from respiratory illnesses. The respiratory rate after 35 years of age is practically the same, but the nonrespiratory rate very definitely increases with age after the period 15-24.

The following question naturally suggests itself: Just what does this variation according to age in the morbidity rate mean? Does it mean that a greater proportion of persons in one age group were sick than in another age group, or does it signify that a certain proportion of one age group were sick more frequently than of another age group? Or do both conditions prevail?

Such questions as these will be answered more satisfactorily when the details of the causes and conditions of the illnesses recorded are before us, but a broad interpretation of one meaning of the morbidity curve is suggested by the distribution of the individuals within each age group according to frequency of illness during the period of observation. Hence, we have selected those individuals who were under observation for 26 months or longer, excluding children under 2 years of age, and have classified them into four groups—(*a*) those suffering no illness during the entire 26 months' period, (*b*) those ill only once, (*c*) those ill twice, and (*d*) those ill four or more times. The tabulation was made in greater detail, but this classification seems sufficient to indicate the general results, which are plotted in Figure 4.

TABLE 6.—*Number and proportion of white individuals in Hagerstown, Md., observed for 26-28 months, who were free from illness or who suffered specified number of attacks, by age groups*

Age, in years	Individuals suffering specified number of illnesses during 26 months							
	Per cent of total in each age group				Number in each age group			
	Not ill	Ill once	Ill twice	Ill 4 or more times	Not ill	Ill once	Ill twice	Ill 4 or more times
2-4	4.7	13.6	18.1	44.4	23	66	88	216
5-9	7.4	12.5	20.0	45.5	54	91	145	330
10-14	14.8	19.0	18.5	27.1	84	108	105	154
15-19	25.7	28.3	18.6	14.3	108	119	78	60
20-24	29.6	29.3	22.4	10.5	90	89	68	32
25-29	23.9	25.7	17.9	16.4	92	99	69	63
30-34	22.8	26.5	18.6	18.4	87	101	71	70
35-44	25.0	24.9	18.4	21.2	177	176	130	150
45-54	21.5	25.0	18.2	22.6	122	143	104	129
55-64	21.2	20.8	19.2	21.9	64	61	58	66
65+	15.7	28.7	22.0	20.0	47	86	66	60

Several interesting indications are afforded by the curves in Figure 4. The proportion of individuals who were not affected by illnesses for a period of 26 months, which included two and one-half winter

seasons, vary quite markedly according to age. Less than 5 per cent of children of 3 and 4 years of age were entirely free from illness of the kind that we are concerned with, and considerably less than 10 per cent of the children under 10 years of age suffered no illnesses during this period. The proportion of well persons increased rapidly from early childhood until the age period 20–24, where 30 per cent of the individuals did not suffer any illness of the

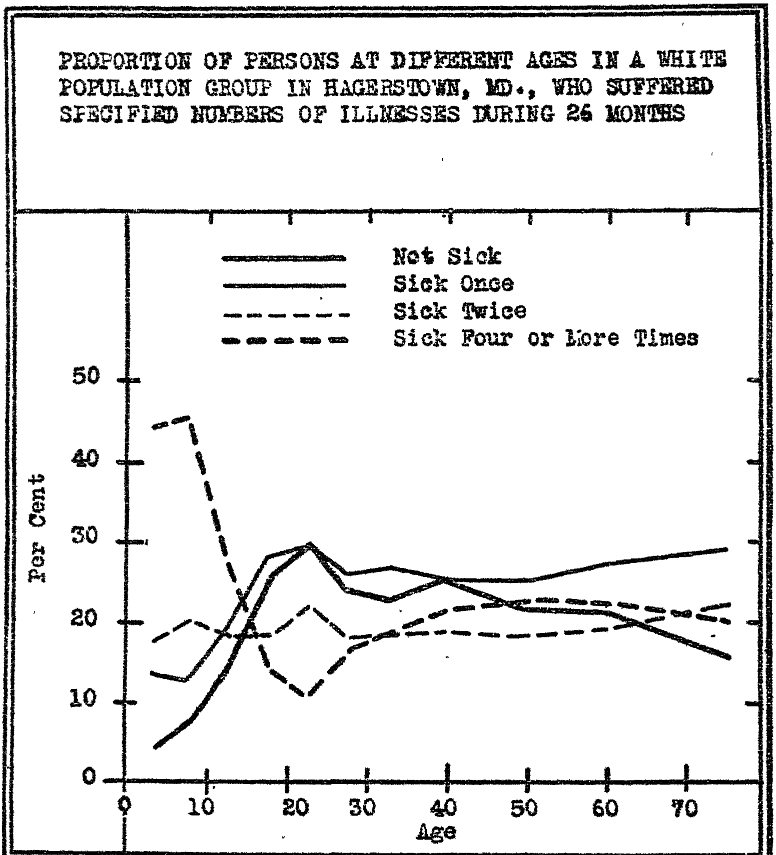

Fig. 4.

kind we recorded; thereafter, the proportion decreased gardually until after the age group 55–64, the proportion of well persons was about 20 per cent and in the old-age period (65 and over) it dropped to 15 per cent.

This curve may be regarded as a rather unusual one, not only because we heretofore have not had the material upon which to base it, but also because of its implications which may be summed up in a general way by describing it as the "age curve of good health." It

is realized fully that this is a very broad statement, for some of the individuals who did not suffer from any illness or marked indisposition may have been affected by conditions actually causing serious impairment of health and which shortly after resulted in serious illness and perhaps death. But a record of over two years without an illness is not a poor indication of freedom from disease in so far as disease manifests itself in morbid effects. The curve at least describes the variation in the ability of the individual at different ages to resist the "attacks," whether these attacks be of disease or natural reactions to environment.

The curve representing the proportion of individuals who were sick only once during the 26 months' period follows rather closely the curve for those who were not sick at all, except in the older ages when, instead of decreasing, it tends to advance.

The converse of the "curve of good health" is found in the curve for the proportion of individuals who were sick four or more times in this period, or, roughly, twice a year. These individuals may be said to constitute a "sickly" group and contribute tremendously to the incidence of morbidity at certain ages. It will be observed that the proportion ill twice a year is nearly 45 per cent in childhood, drops rapidly until the age period 20–24 when it is only 10 per cent, then gradually rises until it reaches a level of approximately 25 per cent at the age period 35 years and over. It is perfectly obvious, of course, that the high incidence of morbidity among children, as shown in the curve in Figure 1, is due chiefly to the frequency of illness among a certain group of "sickly" children.

Curiously enough, when we plot the proportion of individuals in the various age groups who are sick twice during the 26 months' period, we obtain a graph which is almost without significant variation throughout the entire span of life; that is to say, about 20 per cent of the population in every age group is sick once a year.

The greatest variation, therefore, in the distribution of individuals according to the frequency with which they are attacked by illness is in the age of childhood, and in the ages 20–24. In the later adult years the number of "sickly" individuals does not appear to increase to a very marked extent, although the number of persons entirely free from illness decreases slightly.

ACKNOWLEDGMENTS

The continuous field observations upon which the foregoing report is based were made by the following assistants: F. Ruth Phillips, Mrs. Mary King Phillips, Louise Simmons, Mrs. Clara Bell Ledford, Clarice Buhrman, and Mrs. Alcesta Owen, under the immediate supervision of Passed Asst. Surg. R. B. Norment, jr., Acting Asst. Surg. A. S. Gray, and, later, of Surg. C. V. Akin

In the analysis of the data I am especially indebted to Associate Statistician S. D. Collins and Assistant Statistician Dorothy G. Wiehl, and other members of the statistical staff, as well as to several officers of the Public Health Service, for constant advice on medical points.

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(1) The first paper in this series: A Study of Illness in a General Population Group: Method of Study and General Results. Pub. Health Rep., vol. 41, No. 39, Sept. 24, 1926. (Reprint No. 1113.)

(2) Workmen's Insurance and Compensation Systems in Europe, Vol. I (Twenty-fourth Annual Report of U. S. Commissioner of Labor, 1909), pp. 1255 et seq. The statistics and other material used in this section dealing with the Leipzig Local Sick Fund were obtained from the report having the following title: Krankheits-und Sterblichkeits-verhältnisse in der Ortskrankenkasse für Leipzig und Umgegend. Untersuchungen über den Einfluss von Geschlecht, Alter und Beruf. Bearbeitet im Kaiserlicher Statistischen Amte. Berlin, 1910.

(3) Snow, E. C.: Some Statistical Problems Suggested by Sickness and Mortality Data of Certain of the Large Friendly Societies. Jour. Royal Stat. Soc., vol. 76, April 1913, p. 466.

(4) Unpublished data in the offices of Statistical and Industrial Hygiene Investigations, United States Public Health Service.

(5) Emmett, Boris: Disability Among Wage Earners, U. S. Department of Labor Monthly Review, vol. 9, November, 1919 (IX: 1322 et seq.).

(6) Collins, Selwyn D.: Morbidity Among School Children in Hagerstown, Md. Pub. Health Rep., vol. 39, No. 38, Sept. 19, 1924. (Reprint No. 957.)

WHOLE-TIME COUNTY HEALTH OFFICERS, 1927

The following directory has been compiled from data furnished as of January 1, 1927, by State health officers. Similar directories for 1922, 1923, 1924, 1925, and 1926 have been published in the Public Health Reports. The directory for 1926 was issued as Reprint No. 1074.

In the questionnaire sent for the purpose of obtaining the necessary information, a "whole-time" county health officer was defined as "one who does not engage in the practice of medicine or any other business, but devotes his whole time to official duties."

Directories of State health departments have been published annually by the Public Health Service for the years 1912 to 1926, inclusive. The directory for 1926 was issued as Reprint No. 1106 from the Public Health Reports.

Directories of city health officers have been published annually for the years 1916 to 1926, inclusive, the directory for 1926 being Reprint No. 1103.

Directories of State and city health officers for 1927 will be published later.

State and county	Name of health officer	Post-office address	Official title
Alabama:			
Baldwin	G. C. Mallette, M. D	Bay Minette	County health officer.
Barbour	E. M. Moore, M. D	Clayton	Do.
Calhoun	G. A. Cryer, M. D	Anniston	Do.
Chambers	C. W. McDonald, M. D	Lafayette	Do.
Coffee	H. P. Rankin, M. D	Elba	Do
Colbert	W. T. Burkett, M. D	Tuscumbia	Do.
Covington	A. E. Keller, M. D	Andalusia	Do.
Dallas	L. T. Lee, M. D	Selma	Do.
Escambia	R. D. Neal, M. D	Brewton	Do.
Etowah	W. H. Harper, M. D	Gadsden	Do.
Franklin	L. J. Graves, M. D	Russellville	Do.
Houston	L. R. Poole, M. D	Dothan	Do.
Jackson	T. E. Tucker, M. D	Scottsboro	Do.
Jefferson	J. D. Dowling, M. D	Birmingham	Do.
Lauderdale	W. D. Hubbard, M. D	Florence	Do.
Lawrence	R. E. Harper, M. D	Moulton	Do.
Lee	J. E. Brodie, M. D	Opelika	Do.
Limestone	L. R. Murphree, M. D	Athens	Do.
Madison	W. C. Hatchett, M. D	Huntsville	Do.
Marengo	J. R. Long, M. D	Linden	Do.
Marshall	D. C. Jordan, M. D	Guntersville	Do.
Mobile	C. A. Mohr, M. D	Mobile	Do.
Montgomery	J. L. Bowman, M. D	Montgomery	Do.
Morgan	H. C. McRee, M. D	Albany	Do.
Pike	W. H. Abernethy, M. D	Troy	Do.
Sumter	J. S. Hough, M. D	Livingston	Do
Talladega	J. H. Hill, M. D	Talladega	Do
Tallapoosa	W. Ross Cameron, M. D	Dadeville	Do.
Tuscaloosa	A. A. Kirk, M. D	Tuscaloosa	Do.
Walker	A. M. Waldrop, M. D	Jasper	Do.
Arizona:			
Cochise	R. B. Durfee, M. D	Bisbee	Do.
Yuma	Harry A. Reese, M. D	Yuma	Do.
Arkansas:			
Garland	Austin F. Barr, M. D	Hot Springs	Director.
Jefferson	F. Michael Smith, M. D	Pine Bluff	Do.
Pulaski	V. T. Webb, M. D	Little Rock	Do.
California:			
Los Angeles	J. L. Pomeroy, M. D	Los Angeles	County health officer.
Monterey	R. C. Main, M. D	Salinas	Do.
Orange	V. G. Presson, M. D	Santa Ana	Do.
Riverside	W. B. Wells, M. D	Riverside	Do.
San Diego	A. M. Lesem, M. D	San Diego	Do.
San Joaquin	J. J. Sippy, M. D	Stockton	Do.
San Luis Obispo	K. H. Sutherland, M. D	San Luis Obispo	Do.
Santa Barbara			Do.
Yolo	A. N. Crain, M. D	Woodland	Do.
Colorado:			
Otero	Guy A. Ashbaugh, M. D	Rocky Ford	Do.
Florida:			
Polk	W. M. Bevis, M. D	Bartow	Do.
Manatee	J. R. Scully, D. V. M	Sarasota	Do.
Sarasota	do	do	Do.
Georgia:			
Baker	M. A. Fort, M. D	Bainbridge	Health officer.
Baldwin	Sam A. Anderson, M. D	Milledgeville	Commissioner of health
Bartow	D. H. Monroe, M. D	Cartersville	Do.
Bibb	J. D. Applewhite, M. D	Macon	Do
Brooks	R. E. McClure, M. D	Quitman	Do.
Clarke	B. B. Bagby, M. D	Athens	Do
Cobb	J. E. Lester, M. D	Marietta	Do.
Decatur	M. A. Fort, M. D	Bainbridge	Health officer.
De Kalb	J. R. Evans, M. D	Decatur	Commissioner of health.
Dougherty	Hugo Robinson, M. D	Albany	Do.
Floyd	B. V. Elmore, M. D	Rome	Do.
Glynn	H. L. Akridge, M. D	Brunswick	Do.
Grady	M. A. Fort, M. D	Decatur	Health officer.
Hall	D. J. Wellborn, M. D	Gainesville	Commissioner of health.
Laurens	O. H. Cheek, M. D	Dublin	Do.
Lowndes	G. T. Crozier, M. D	Valdosta	Do.
Mitchell	C. O. Rainey, M. D	Camilla	Do.
Richmond			Do
Spalding	W. C. Humphries, M. D	Griffin	Do.
Sumter	W. H. Houston, M. D	Americus	Do.
Thomas	J. W. Wallace, M. D	Thomasville	Do.
Troup	S. C. Rutland, M. D	La Grange	Do.
Walker	J. H. Hammond, M. D	La Fayette	Do.
Ware	G. E. Atwood, M. D	Waycross	Do.

State and county	Name of health officer	Post-office address	Official title
Illinois:			
Cook	Herbert L. Wright, M. D., Dr. P. H.	Chicago, 737 So. Lincoln	County health director.
Morgan	W. H. Newcomb, M. D	Jacksonville	County health officer.
Sangamon	R. V. Brokaw, M. D	Springfield	Do.
Iowa:			
Dubuque	D. C. Steelsmith, M. D., C. P. H.	Dubuque	Director of health.
Kansas:			
Butler	R. J. Cabeen, M. D	Eldorado	County health officer.
Coffey	V. McMullen, M. D	Burlington	Do.
Ellis	F. C. Cave, M. D	Hays	Do.
Geary	R B. Stafford, M. D	Junction City	Do.
Jefferson	D. M. Stevens, M. D	Oskaloosa	Do.
Lyon	J. S. Fulton, M. D	Emporia	Do
Marion	J. H. Saylor, M. D	Marion	Do.
Ottawa	C. R. Hepler, M D	Minneapolis	Do.
Phillips	G. D. M. Lambdin, M. D	Phillipsburg	Do.
Kentucky:			
Boyd	R. D. Higgins, M. D	Ashland	Director of health.
Daviess	R. M. Hathaway, M. D	Owensboro	Do.
Fayette	F. P. Allen, M. D	Lexington	Do
Fulton	J. C. Morrison, M. D	Hickman	Do.
Jefferson	E. P. Whistler, M. D	Louisville	Health officer.
Johnson	C. F. Holtegel, M. D	Paintsville	Director of health.
Knott	J. W. Duke, M. D	Hindman	Do.
Mason	J. H. Hutchings, M. D	Maysville	Do.
Scott	A. Stewart, M. D	Georgetown	Do.
Louisiana:[1]			
Caddo	W. J. Sandidge, M. D	Shreveport	Director parish health unit.
Claiborne	John R. Turner, M. D	Homer	Do.
De Soto	R. A. Tharp, M. D	Mansfield	Do.
La Fourche	H. S Smith, M. D	Thibodaux	Parish health officer.
Natchitoches	W. W. Knipmeyer, M. D	Natchitoches	Director parish health unit.
Ouachita	Paul R. Neal, M. D	Monroe	Do.
Plaquemines	Terry Bird, M. D	Pointe a la Hache	Parish health officer.
St. Mary	Thomas B. Wilson, M. D	Franklin	Director parish health unit.
Washington	John Schreiber, M. D	Franklinton	Parish health officer.
Webster	E. B. Godfrey, M. D	Minden	Director parish health unit.
Maryland:			
Allegany	C. C. McCulloch, M. D	Cumberland	County health officer.
Baltimore	J. S. Bowen, M. D	Towson	Do.
Calvert	I. N. King, M. D	Prince Frederick	Do.
Carroll	W. C. Stone, M. D	Westminster	Do.
Frederick	E. C. Kefauver, M. D	Frederick	Do.
Montgomery	W. T. Pratt, M. D	Rockville	Do.
Massachusetts:			
Barnstable	A. P. Goff, M. D	Hyannis	Health officer.
Minnesota:			
St. Louis	H. G. Lampson, M. D	Duluth	County health officer.
Mississippi:			
Bolivar	R. D. Dedwylder, M. D	Cleveland	Director of health.
Clarke	J. T. Googe, M. D	Quitman	Do.
Coahoma	R. R. Kirkpatrick, M. D	Clarksdale	Do.
Forrest	W. D. Beacham, M. D	Hattiesburg	Do.
Hancock	C. M. Shipp, M. D	Bay St. Louis	Do.
Harrison	D. J. Williams, M. D	Gulfport	County health officer.
Hinds	J. B Black, M. D., C. P. H.	Jackson	Director of health.
Holmes	B. D. Blackwelder, M. D	Lexington	Do.
Jackson	John M. Futrell, M. D	Pascagoula	Do.
Jones	W. B. Harrison, M. D	Laurel	Do.
Lamar	R. G. Lander, M. D	Purvis	Do.
Lee	C. S. Guild, M. D	Tupelo	Do.
Leflore	C. P. Coogle, M. D	Greenwood	Do.
Pearl River	J. W. Shackelford, M. D	Poplarville	Do.
Perry	B. T. Robinson, M. D	New Augusta	Do.
Sharkey	A. K. Barrier, M. D	Rolling Fork	Do.
Union	C. M. Roberts, M. D	New Albany	Do.
Washington	A. J. Ware, M. D	Greenville	County health officer.
Missouri:			
Boone	Finis Suggett, M. D	Columbia	Do.
Dunklin	E L. Spence, M D	Kennett	Do.
Greene	J. W. Williams, M. D	Springfield	Do.
Holt	R. R. Miller, M. D	Oregon	Do.
Jackson	F. G. Crandall, M. D	Independence	Do.
Marion	E. M. Lucke, M. D	Hannibal	Do.
New Madrid	Wm. N O'Bannon, M. D	New Madrid	Do.
Nodaway	C. P. Fryer, M. D., C. P. H.	Maryville	Do.
Pemiscot	W. S. Petty, M. D	Caruthersville	Do.

[1] Parishes.

State and county	Name of health officer	Post-office address	Official title
Missouri—Continued.			
Pettis	H. F. Turner, M. D	Sedalia	County health officer.
St. Francois	W. W. Johnston, M. D	Flat River	Do.
St. Louis	A. E. Walters, M. D	Clayton	Do.
Montana:			
Cascade	Thos. F. Walker, M. D	Great Falls	Do.
Lewis and Clark	Arthur Jordan, M. D	Helena	Do.
Missoula	F. D. Pease, M. D	Missoula	Do.
New Mexico:			
Bernalillo	G. W. Luckey, M. D	Albuquerque	Do.
Chaves	J. A. Smith, M. D	Roswell	Do.
Dona Ana	C. W. Gerber, M. D	Las Cruces	Do.
Eddy	O. E. Puckett, M. D	Carlsbad	Do.
McKinley	A. M. Washburn, M. D	Gallup	Do.
San Miguel			Do.
Santa Fe	H. P. Mera, M. D	Santa Fe	Do.
Union	C. H. Douthirt, M. D	Clayton	Do.
Valencia	P. H. McNellis, M. D	Los Lunas	Do.
New York:			
Cattaraugus	S. A. Douglass, M. D	Olean	Do.
North Carolina:			
Beaufort	John W. Williams, M. D	Washington	Do.
Bertie	J. E. Smith, M. D	Windsor	Do.
Bladen	R. S. Cromartie, M. D	Elizabethtown	Do.
Brunswick	R. E. Broadway, M. D	Southport	Do.
Buncombe	G. A. Morgan, M. D	Asheville	Do.
Cabarrus	D. G. Caldwell, M. D	Concord	Do.
Carteret	T. C. Britt, M. D	Beaufort	Do.
Columbus	Floyd Johnson, M. D	Whiteville	Do.
Craven	D. E. Ford, M. D	New Bern	Do.
Cumberland	J. W. McNeill, M. D	Fayetteville	Do.
Davidson	G. C. Gambrell, M. D	Lexington	Do.
Durham	J. H. Epperson, Ph. D	Durham	Do.
Edgecombe	A. C. Norfleet, M. D	Tarboro	Do.
Forsyth	J. R. Hege, M. D	Winston-Salem	Do.
Granville	J. A. Morris, M. D	Oxford	Do.
Guilford	R. M. Buie, M. D	Greensboro	Do.
Halifax	Z. P. Mitchell, M. D	Weldon	Do.
Henderson	J. H. Woodcock, M. D	Hendersonville	Do.
Johnston	C. C. Massey, M. D	Smithfield	Do.
Lenoir	R. S. McGeachy, M. D	Kinston	Do.
Mecklenburg	W. A. McPhaul, M. D	Charlotte	Do.
Nash	G. F. Reeves, M. D	Nashville	Do.
New Hanover	John H. Hamilton, M. D	Wilmington	Do.
Northampton	M. H. Scawell, M. D	Jackson	Do.
Pamlico	D. A. Dees, M. D	Bayboro	Do.
Pitt	W. E. Futrell, M. D	Greenville	Do.
Richmond	A. B. McCreary, M. D	Rockingham	Do.
Robeson	E. R. Hardin, M. D	Lumberton	Do.
Rowan	C. W. Armstrong, M. D	Salisbury	Do.
Rutherford	J. C. Twitty, M. D	Rutherfordton	Do.
Sampson	John D. Kerr, M. D	Clinton	Do.
Surry	G. H. Sumner, M. D	Mount Airy	Do.
Vance	F. R. Harris, M. D	Henderson	Do.
Wake	A. C. Bulla, M. D	Raleigh	Do.
Wayne	L. W. Corbett, M. D	Goldsboro	Do.
Wilkes	J. W. White, M. D	Wilkesboro	Do.
Wilson	L. J. Smith, M. D	Wilson	Do.
Ohio:			
Allen	J. J. Sutter, M. D	Lima	Health commissioner.
Ashtabula	W. S. Weiss, M. D	Jefferson	Do.
Belmont	F. R. Dew, M. D	St. Clairsville	Do.
Butler	C. J. Baldridge, M. D	Hamilton	Do.
Clermont	F. A. Ireton, M. D	Batavia	Do.
Clinton	W. K. Ruble, M. D	Wilmington	Do.
Columbiana	T. T. Church, M. D	Lisbon	Do.
Coshocton	D. M. Criswell, M. D	Coshocton	Do.
Crawford	G. T. Wasson, M. D	Bucyrus	Do.
Cuyahoga	Robert Lockhart, M. D	Cleveland	Do.
Darke	Milford E. Barnes, M. D	Greenville	Do.
Delaware	Albert J. Pounds, M. D	Delaware	Do.
Erie	F. M. Houghtaling, M. D	Sandusky	Do.
Fayette	James F. Wilson, M. D	Washington Court House	Do.
Geauga	Walter Corey, M. D	Chardon	Do.
Hamilton	C. A. Neal, M. D	Cincinnati	Do.
Hancock	S. F. Whisler, M. D	Findlay	Do.
Hocking	B. S. Stephenson, M. D	Logan	Do.
Huron	B. C. Pilkey, M. D	Norwalk	Do.
Jefferson	J. P. Young, M. D	Steubenville	Do.
Lake	Walter Corey, M. D	Painesville	Do.
Lorain	I. C. Riggin, M. D	Oberlin	Do.
Lucas	F. F. DeVore, M. D	Toledo	Do.
Mahoning	J. F. Elder, M. D	Youngstown	Do.
Marion	N. Sifritt, M. D	Marion	Do.
Meigs	Jane Nye Gilliford, M. D	Pomeroy	Do.
Mercer	F. E. Ayers, M. D	Celina	Do.

State and county	Name of health officer	Post-office address	Official title
Ohio—Continued.			
Miami	P. J. Crawford, M. D	Troy	Health commissioner.
Montgomery	H. H. Pansing, M. D	Dayton	Do.
Morrow	R. L. Pierce, M. D	Mount Gilead	Do.
Muskingum	J. M. O'Neal, M. D	Zanesville	Do.
Perry	F. J. Crosbie, M. D	New Lexington	Do.
Preble	H. Z. Silver, M. D	Eaton	Do.
Richland	C. D. Barrett, M. D	Mansfield	Do.
Ross	G. E. Robbins, M. D	Chillicothe	Do.
Sandusky	O. H. Thomas, M. D	Fremont	Do.
Scioto	R. W. DeCrow, M. D	Wheelersburg	Do.
Seneca	J. J. Heaton, M. D	Tiffin	Do.
Shelby	M. D. Ailes, M. D	Sidney	Do.
Stark	C. M. Peters, M. D	Canton	Do.
Summit	R. H. Markwith, M. D	Akron	Do.
Trumbull	L. A. Connell, M. D	Warren	Do.
Tuscarawas	J. Blickensderfer, M. D	New Philadelphia	Do.
Union	H. G. Southard, M. D	Marysville	Do.
Washington	Alfred G. Sturgiss, M. D	Marietta	Do.
Wayne	W. G. Rhoten, M. D	Wooster	Do.
Wood	H. J. Powell, M. D	Bowling Green	Do.
Oklahoma:			
Carter			County superintendent of health.
Kay	D. M. Cowgill, M. D	Newkirk	Do.
Le Flore	W. F. Lunsford, M. D	Poteau	Do.
McCurtain	R. D. Williams, M. D	Idabel	Do.
Muskogee	J. D. Leonard, M. D	Muskogee	Do.
Oklahoma	Geo. Hunter, M. D	Oklahoma City	Do.
Okmulgee	J. O. Walls, M. D	Okmulgee	Do.
Ottawa	F. P. Helm, M. D	Miami	Do.
Pittsburg	C. M. Pearce, M. D	McAlester	Do.
Oregon:			
Clackamas	F. W. Wallace, M. D	Oregon City	County health officer.
Coos	P. M. Drake, M. D	Coquille	Do.
Douglas	R. Thompson, M. D	Roseburg	Do.
Jackson	L. D. Inskeep, M. D	Jacksonville	Do.
Klamath			
South Carolina:			
Aiken	W. G. Bodie, M.D	Aiken	Do.
Anderson	E. E. Epting, M. D	Anderson	Do.
Beaufort	H. B. Senn, M. D	Beaufort	Do.
Charleston	Leon Banov, M. D	Charleston	Do.
Cherokee	P. H. Smith, M. D	Gaffney	Do.
Darlington	A. B. Hooton, M. D	Darlington	Do.
Dillon	C. C. Freed, M. D	Dillon	Do.
Fairfield	H. T. Kennedy, M. D	Winnsboro	Do.
Georgetown	Clem Ham, M. D	Georgetown	Do.
Greenville	Bayliss Earle, M. D	Greenville	Do.
Greenwood	Robert D. Hill, M. D	Greenwood	Do.
Horry	G. S. T. Peeples, M. D	Conway	Do.
Marion	R. L. Martin, M. D	Marion	Do.
Newberry	H. G. Callison, M. D	Newberry	Do.
Orangeburg	G. C. Bolin, M. D	Orangeburg	Do.
Spartanburg	L. L. Williams, M. D	Spartanburg	Do.
South Dakota:			
Brown	P. V. McCarthy, M. D	Aberdeen	Do.
Pennington	M. W. Pangburn, M. D	Rapid City	Do.
Tennessee:			
Blount	K. A. Bryant, M. D	Maryville	Field director.
Davidson	J. J. Lentz, M. D	Nashville	County health officer.
Dyer	C. A. Collins, M. D	Dyersburg	Acting health officer.
Gibson	F. L. Roberts, M. D	Trenton	County health officer.
Hamilton	J. W. Dennis, M. D	Chattanooga	Do.
Lauderdale	B. M. Primer, M. D	Ripley	Field director.
* Montgomery	F. J. Malone, M. D	Clarkesville	County health officer.
Obion	C. B. A. Turner, M. D	Union City	Do.
Roane	J. C. Fly, M. D	Kingston	Do.
Rutherford	H. S. Mustard, M. D	Murfreesboro	Do.
Sevier	C. S. Kinzer, M. D	Sevierville	Acting health officer.
Shelby	L. M. Graves, M. D	Memphis	County health officer.
Weakley	S. S. Moody, M. D	Dresden	Do.
Williamson	W. C. Williams, M. D	Franklin	Do.
Texas:			
Cameron	Ernest W. Prothro, M. D	San Benito	Do.
Hidalgo	J. R. Mahone, M. D	Edinburg	Do.
Jefferson	James D. Blevins, M. D	Beaumont	School medical officer.
McLennan	R. McCormick, M. D	Waco	County health officer.
Tarrant	F. P. Smith, M. D	Fort Worth	Do.
Utah:			
Box Elder	Wilford Reichman, M. D	Brigham City	Do.
Davis	Sumner Gleason, M. D	Kaysville	Do.
Morgan	Q. B. Coray, M. D	Morgan	Do.
Summit	do	do	Do.
Wasatch	do	do	Do.
Weber	H. Earl Belnap, M. D	Ogden	Do.

State and county	Name of health officer	Post-office address	Official title
Virginia			
Accomac	Robert P. Cooke, M. D.	Accomac	County health officer.
Albemarle	Geo. B. Young, M. D.	Charlottesville	Do.
Arlington	P. M. Chichester, M. D.	Clarendon	Do.
Augusta	H. M. Wallace, M. D.	Staunton	Do.
Brunswick	John M. Bailey, M. D.	Lawrenceville	Do.
Fairfax	Wm. P. Caton, M. D.	Fairfax	Do
Halifax	Kolbe Curtice	South Boston	Do.
Henrico	W. R. King, M. D.	Richmond	Do.
Isle of Wight	G. H. Warren, M. D.	Smithfield	Do.
James City	J. H. Crouch, M. D., C. P. H.	Williamsburg	Do.
Nansemond	C. F. Moriarty, M. D.	Suffolk	Do.
Northampton	Anne Owen Hamilton	Eastville	Acting health officer.
Southampton	A. L. McLean, M. D.	Courtland	County health officer.
Sussex	do	do	Do.
Wise	W. R. Culbertson, M. D.	Norton	Do.
Washington:			
Chelan	Paul A. West, M. D.	Wenatchee	Do.
King	G. H. T. Sparling, M. D.	Seattle	Do.
Snohomish	F. A. Franke, M. D.	Everett	Do.
Spokane	W. M. Newman, M. D.	Spokane	Do.
Walla Walla	Miles Hopkins, M. D.	Walla Walla	Do.
Yakima	H. H. Smith, M. D.	Yakima	Do.
West Virginia:			
Boone	W. H. Enneis, M. D.	Madison	Do.
Brooke	L. M. Coulter, M. D.	Wellsburg	Do.
Gilmer	A. L. Oiler, M. D.	Glenville	Do.
Hancock	A. E. McClue, M. D.	New Cumberland	Do.
Harrison	V. A. Selby, M. D.	Clarksburg	Do.
Kanawha	John Thames, M. D.	Charleston	Do.
Logan	P. B. Wingfield, M. D.	Logan	Do.
Marion	H. M. Batson, M. D.	Fairmont	Do.
Marshall	D. Berman, M. D.	Moundsville	Do.
Ohio	W. H. McLain, M. D.	Wheeling	Do.
Preston	L. H. Lewis, M. D.	Kingwood	Do.
Roane	F. C. Makepeace, M. D.	Spencer	Do.
Wood	T. R. Meyer, M. D.	Parkersburg	Do.
Wyoming:			
Natrona	H. Garst, M. D.	Casper	Director of health.

EXPERIMENTAL BACTERIAL AND CHEMICAL POLLUTION OF WELLS VIA GROUND WATER

The United States Public Health Service has recently issued a report (Hygienic Laboratory Bulletin 147) dealing with the extension of pollution to wells by means of the ground water. This interesting subject has been under controversy since about 1860, and the views of sanitarians have been divided. Some authors have doubted whether pollution would travel laterally more than 6 to 10 feet, except through certain geological formations, such as limestone and fissures.

During the World War this subject came prominently to the fore, and a special board was named to study the subject experimentally. This board consisted of Prof. E. O. Jordan, of Chicago University; Prof. G. C. Whipple, of Harvard; Prof. E. B. Phelps, of Columbia University; Col. C. F. Craig, United States Army; State Health Officer W. S. Rankin, of North Carolina; and Surg. L. L. Lumsden and Prof. C. W. Stiles, of the United States Public Health Service. Extensive experimental studies were conducted at the United States marine hospital at Wilmington, N. C., and at Fort Caswell, N. C., under the direction of Professor Stiles, chairman of the board.

As a result of these studies, which occupied several years, it was found possible to recover chemical pollution in wells up to a distance of 450 feet, and bacterial pollution up to a distance of 232 feet from the trenches in which the pollution was placed.

Pollution sinks vertically downward until it reaches the ground-water table, which represents the water level of wells, and it spreads only in the direction of the ground-water flow. This ground water flows through the ground much in the same way that a river flows through a valley. The water rises after rainfall and sinks during dry weather. As polluted water sinks, the pollution filters out into the ground; if the ground layer remains moist, the pollution may live and is carried farther when the ground water rises again; if it becomes dry, the pollution dies. Thus, these investigations have uncovered a hitherto unknown law of Nature, namely, that it is the rise and fall of the ground water, due to rain and drought, which permits the water to become purified; were it not for this fact, the underground water would contain pollution of considerable age, possibly dating back many years, and it would be difficult to find pure spring water or pure well water except under an impervious layer.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Stream Pollution in the United States. Prepared by George J. Schulz, Legislative Reference Service, Library of Congress. House of Representatives Document No. 632, 69th Congress, 2d session. 31 pp. (Abstract by J. K. Hoskins.)

This "monograph relating to the pollution and obstruction of navigable streams in the United States by sewage and industrial wastes" is a well-written, running review of many publications on the subject, describing the increasing burden of stream pollution and the various methods of sewage and industrial waste treatment that give promise of relief. The scope of the paper is best gauged by the section headings of the table of contents:

I. The menace of stream pollution.
II. The extent of stream pollution.
III. The composition of sewage.
IV. The decomposition of sewage.
V. The problem of sewage disposal.
VI. Industrial wastes.
VII. Tomato-canning wastes.
VIII. Acid-iron wastes.
IX. Strawboard-industry wastes.
X. Sulphite pulp waste.
XI. Distillery wastes.
XII. Oil pollution.
XIII. Sewage treatment.
XIV. The utilization of sewage.
XV. The recovery and utilization of industrial wastes.
XVI. Recovery and utilization of sulphite wastes.
XVII. Recovery and utilization of tannery wastes.
XVIII. Recovery and utilization of coke-oven wastes.
XIX. Recovery and utilization of strawboard wastes.
XX. Recovery and utilization of metal industries wastes.
XXI. Conclusion.

The references are clearly stated for many of the positive statements made in the text. An index adds to the value of the paper.

Method of Sewage Treatment Adopted for North Toronto. Almon L. Fales. *Journal of Boston Society of Civil Engineers*, vol. 14, No. 2. February, 1927, pp. 75–77. (Abstract by E. C. Sullivan.)

This article describes the method of sewage treatment which has been recommended for the sewage disposal of North Toronto, Canada, and gives a description of the various features to be included in the plant, the plans and specifications for which are now in preparation.

The treatment plant, as built at the present time, will be designed for a population of 50,000 and so arranged as to permit of enlargement. The district to be served will be provided with a combined sewerage system, taking both sewage and storm-water run-off, and in addition the flow from certain brooks, the dry-weather flow of which is estimated at a little over 6,000,000 gallons daily. The effluent will be discharged into the River Don.

In view of the local conditions, a high degree of purification is required, including not only the efficient removal of suspended solids, but also fairly complete oxidation of the dissolved organic matter in the sewage. Storm flows up to a rate of twice the dry flow, or 240 gallons per capita per day, are to receive complete treatment. For flows in excess of twice the dry-weather flow and up to thirty-six times the dry-weather flows, sedimentation is to be provided, according to the English practice, in storm-flow stand-by tanks.

The plant recommended, in addition to storm-water stand-by tanks, will consist of racks, grit chambers, preliminary sedimentation tanks, activated sludge aeration and sedimentation tanks, covered separate sludge digestion tanks with provision for controlling the reaction of the sludge, and glass-housed sludge beds. The gases from the sludge digestion tanks will be collected and burned under steam boilers, and the steam utilized for maintaining a favorable temperature for sludge digestion and for other purposes.

Recent Results from Separate Sludge Digestion Experiments. Willem Rudolfs. *Public Works*, vol. 58, No. 2, February, 1927, pp. 50–52. (Abstract by E. C. Sullivan.)

At Plainfield, N. J., there were constructed at the sewage disposal plant (as a consequence of considerable experimentation, both in the laboratory and at the plant, to relieve conditions) two 16-sided concrete tanks for separate sludge digestion, supplied with floating covers and facilities for adjusting the fresh solids with lime and for heating the sludge. Five thousand five hundred cubic feet of ripe sludge were first pumped into the tank from the Imhoff tanks for seeding. Fresh solids, obtained from an Imhoff tank which was used as a preliminary settling tank, were added every two or three days for a period of 60 days after the tank had been in operation, and thereafter the laboratory determinations were begun. These fresh solids were adjusted with dry hydrated lime to a pH value of 7.3. Determinations included the amount of gas, the composition of the gas, the pH value, the total acidity, the total alkalinity, the NH_3 nitrogen, the solids, and the ash. Bacteriological counts were made and an automatic record was kept of the temperature in the tank and of the air.

The conclusions which might be drawn from the experiments are as follows: (1) Since it was possible with 1 pound of soft coal per 1,000 pounds of sludge to raise the temperature of the sludge 0.4° F. per day, it will probably cost less to maintain a higher temperature when heating is begun as soon as the temperature drops; (2) if really fresh solids are added every day, the amount of lime necessary for adjustment will be small, because the material in the tank in a proper biological balance condition will maintain an optimum reaction for digestion; (3) a properly insulated separate digestion tank under good control is at least as efficient as an Imhoff tank; consequently, sludge digestion capacity will be about equal for both types of tanks.

This article is obtained from Paper No. 323 of the Journal Series, New Jersey Agricultural Experiment Station, Department of Sewage Disposal, presented before the American Society for Municipal Improvements.

Chloro Tastes and Their Eradication at Dallas, Tex. O. M. Bakke. *Journal American Water Works Association,* vol. 16, No. 6, December, 1926, pp. 730–736. (Abstract by E. C. Sullivan.)

In the occasional use of auxiliary White Rock Lake supply of Dallas, Tex., there was experienced in 1923, after the new filtration plant had been completed, a strong iodoform odor and taste, and at times a grassy and musty taste caused by *Anabaena* and diatoms. By means of superchlorination it has been found possible largely to obviate the iodoform taste. This has been accomplished by chlorination of the raw water to maintain a residual chlorine content of the raw water of about 0.35 p. p. m. and by chlorination of the plant effluent to maintain a residual of 0.08 to 0.10 p. p. m. in the final plant effluent.

It was also found at White Rock that superchlorination had no effect on certain grassy and musty tastes and odors, and that the algal growth must be controlled by copper sulphate. As the plant is used intermittently, there is a considerable growth of algae on the filters when the plant is closed down for any length of time or even for a few days, the effect of which is to give the water a sour, musty taste. This trouble is eliminated by adding a solution of copper sulphate, equivalent to 2 pounds per filter, mixed by letting in some wash water, and allowing to stand for 24 hours, after which the filters are washed.

The Turtle Creek filtration plant of the city of Dallas, which is the main source of supply, is twice chlorinated—as it comes from the filters and as it leaves the clear water basin and enters the mains. This was done on account of considerable growth of bacteria in the clear water reservoir, especially in warm weather, there being a considerable increase in various gas-formers and a slight increase in *B. coli;* the open reservoir is frequented by ducks and other birds and subject to other incidental outside contamination.

After the secondary chlorination of the clear water reservoir had been inaugurated in December, 1923, taste trouble, having some resemblance to the iodoform taste, was experienced intermittently and localized along the mains. After observation it was concluded that when sufficient normal carbonate was present in the filtered water—i. e., when the pH was sufficiently high—the applied chlorine produced hypochlorites and most probably chlor-amines also. These chlorine products held fast to their available chlorine in the high pH medium and in the absence of sufficient half-bound carbon dioxide caused release of the chlorine. Such stabilized chlorine compounds would, therefore, persist for many hours in the mains. These compounds were responsible for the "flat" tastes prevailing at the plant and in the newer sections of the city. In the older sections of the city, iodoform tastes were produced through the action of the stable compounds containing chlorine on the pipe coatings, or perhaps through contact with slime deposits within the older mains.

It has been found possible to correct this trouble through decreased lime dosage and increased ferrous sulphate dosage without changing the primary or secondary chlorine dosages. This procedure would produce a clearer effluent and at the same time one containing sufficient bicarbonate content, not only to prevent the formation of stabilized chlorine products, but at the same time to allow greater rapidity of dissipation of the available chlorine present. Although somewhat more costly during periods of very turbid water, when greater quantities of ferrous sulphate are required in lieu of increased lime dosage, the change of treatment is stated to have unquestionably eliminated the cause of taste troubles.

The Present Status of the Use of Iodides in the Minneapolis Water Supply. Arthur F. Mellen. *Journal of the American Water Works Association,* vol. 16, No. 6, December, 1926, pp. 715–729. (Abstract by E. C. Sullivan.)

The writer of this paper states that about five years ago the attention of waterworks officials was called to a new problem, namely, that many waters are defi-

cient in iodides and that this is the cause of simple, or endemic goiter. An explanation is given of simple, or endemic goiter, and reference is made to the work of various investigators, which, in some instances, are quoted.

It is stated that any method chosen to make up iodide deficiency should (1) reach at all times those who need it, (2) be simple as to application, (3) be within reasonable cost, (4) not involve complicated problems in public health administration, and (5) be immediately available. The following have been proposed to make up such iodide deficiency: (1) Sea salt, (2) sea foods, (3) iodide tablets, (4) iodized table salt, and (5) the iodization of public water supplies.

The writer discusses each of these methods and the possible difficulties in the use of some of them. In the case of Minneapolis, the city in which the writer is particularly interested, the iodization of the public water supply has been approved of by the board of public welfare. The purpose of the undertaking is stated to be "the placing in the city water supply of a sufficient amount of iodide of soda to make the city water content of iodine the same as that of cities outside the iodine-free belt."

Typhoid Fever in Relation to Filtration and Chlorination of Municipal Water Supplies in American Cities, 1900 to 1924. *Statistical Bulletin*, Metropolitan Life Insurance Co., vol. 8, No. 3, March, 1927. (Abstract by W. L. Havens.)

This article includes graphs showing per cent population supplied with filtered and with chlorinated water and also the line of typhoid morbidity for 70 cities, which are divided into three groups, according to size. In each group the death rate has been distinctly responsive to the increased use of purified water, and now stands at 4 per 100,000. The decline is noted as starting in about 1907. This article is a forerunner of a more detailed consideration of typhoid and of control measures in the larger cities.

Cross Connections in Connecticut. Warren J. Scott. State of Connecticut *Health Bulletin*, vol. 41, No. 1, January, 1927, pp. 3–6. (Abstract by E. C. Sullivan.)

The public-health council of the State Health Department of Connecticut has adopted regulations which provide that after December 31, 1926, no cross connections shall exist between potable and nonpotable water supplies, except that installations protected by double-check valves of approved type, with adequate facilities for testing, which were in existence on December 31, 1926, may be temporarily permitted with the approval of the State health department. The latter provision was inserted because it was felt that double-check valves of the latest approved types should be given a fair try out. The length of the extension of time granted will depend upon the investigations which the Connecticut State Department of Health is making as to the efficiency of the newest types of check valves.

The article states that the majority of cross connections in Connecticut have been eliminated. The work tending toward their elimination is still in progress. Some cities still have a considerable number of double-check valves, either in existence previous to the passage of the regulations or since installed, but there is a markedly less hazard than with the old neglected connections.

In many cases separate piping has been provided for polluted water; others have installed tanks filled with city water; city water to large tanks supplied by two sources has been made to discharge above water level; priming connections have been replaced by small tanks filled from above with city water; for boiler feed or other industrial use, swing joints with an elbow and unions have been used in the case of small-diameter piping, whereby either of two supplies can be used but both can not be used at once. These represent some of the methods used to bring about complete separation. In some instances piping systems have been found to be literally "sewed together," and much time and effort have been needed to separate them.

Algae Treatment of Reservoirs, Recent Experience. Frank E. Hale. *Journal of the American Water Works Association*, vol. 16, No. 6, December, 1926, pp. 765–768. (Abstract by E. C. Sullivan.)

Several experiences in the control of algae in the New York City water supply are cited, and data on the treatment with copper sulphate of the Croton watershed, Central Park Reservoir, and the Jerome Park Reservoir are furnished. As a result of some difficulty with taste and odors after treatment of the Jerome Park Reservoir on August 25, 1925, a new procedure for treatment and putting into service of reservoirs was outlined and distributed.

The main points of this procedure involve care in distributing the copper sulphate rapidly and uniformly, prompt inspection of the water, if possible the third day after the treatment, and laboratory examination of samples to note whether the organisms are dead, etc. Care is likewise taken wherever possible when turning a reservoir into service after treatment to establish the flow gradually, mixing effluent water with by-passed water, and noting turbidity, taste, and odor of both effluent and mixed flow.

Effort should be made to prevent the stirring up of deposits in reservoirs or conduits which have been idle or full of stagnant water. The drawing of water from the extreme bottom of the reservoir following treatment is to be avoided if possible. Mid depth, or at least 10 feet above the bottom, is preferable. Surface draft may sometimes be advisable, but should not be continued, in order to avoid stagnation effects in the reservoir.

Experiments on the Pasteurization of Milk, with Reference to the Efficiency of Commercial Pasteurization. H. Jenkins. *Journal of Hygiene*, vol. 25, 1926, pp. 273–284. (Abstract by W. G. Savage in the *Bulletin of Hygiene*, vol. 2, No. 2, February, 1927, pp. 133–134.)

"Commercial Pasteurization is here defined as Pasteurization by heating the milk to 62.8° C. (145° F.) and holding it at that temperature for 30 minutes. (It does not mean Pasteurization as commonly carried out commercially in this country, which is by the flash method and without any holding of the milk for a definite period. In discussing the efficiency of Pasteurization it is of prime importance to define exactly what is meant.)

"The author's experiments showed that this type of Pasteurization, when carried out under laboratory conditions, reduced the number of bacteria by 94 to 97.5 per cent, the percentage varying with the initial bacterial content; and in all cases it reduced *B. coli* so that none are found in 1 c. c. With temperatures lower than 62.8° C., i. e., as low as 59° C., the *B. coli* results were the same, but the total bacterial reduction was less. The results were equally good when anaerobic incubation was used.

"When an actual commercial laboratory plant was used, Pasteurization was rather less efficient. The average reduction in the total bacteria was 91.2 per cent, while coliform organisms were eliminated only from 1 c. c. in 4 out of 8 specimens. Factors suggested to account for the inferior results are: Insufficient mixing of the milk in the holding tank so that all the milk was not heated uniformly to the required temperature, failure of the mechanical filling arrangement to function properly, incompletely sterilized connection tubes, and an uncovered cooler.

"The efficiency of this type of Pasteurization to kill tubercle bacilli was tested with milk artificially inoculated with cultures of *B. tuberculosis* of both human and bovine type and with milk infected naturally and obtained from a cow suffering from udder tuberculosis. Six experiments with culture strains and tested under laboratory conditions at temperatures ranging from 62° C. to 63.8° C. showed killed or avirulent tubercle bacilli, as judged by guinea-pig inoculations. Two experiments with naturally infected milk heated at 60° and 62.8° C., respectively, were equally satisfactory.

"One liter of milk from a tuberculous cow, and containing numerous tubercle bacilli was added to 50 gallons of milk and subjected to Pasteurization in the commercial plant. Two guinea pigs, inoculated respectively from the cream

and sediment before Pasteurization, developed a generalized tuberculosis, while two other animals, similarly treated but after Pasteurization, showed no evidence of disease when killed after six weeks."

DEATHS DURING WEEK ENDED MAY 28, 1927

Summary of information received by telegraph from industrial insurance companies for week ended May 28, 1927, and corresponding week of 1926. (From the Weekly Health Index, June 2, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 28, 1927	Corresponding week, 1926
Policies in force	67, 772, 503	64, 584, 020
Number of death claims	11, 919	12, 478
Death claims per 1,000 policies in force, annual rate	9. 2	10. 1

Deaths from all causes in certain large cities of the United States during the week ended May 28, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, June 2, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 28, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended May 28, 1927 [2]
	Total deaths	Death rate [1]		Week ended May 28, 1927	Corresponding week, 1926	
Total (66 cities)	7,637	12. 5	[3] 12. 7	724	[3] 887	[4] 61
Albany [5]	26	11. 3	16. 7	4	3	83
Atlanta	75			5	12	
White	40			1	7	
Colored	35	(6)		4	5	
Baltimore [5]	184	11. 7	12. 5	18	16	56
White	125		11. 3	10	12	30
Colored	49	(6)	19. 3	8	4	124
Birmingham	61	14. 8	18. 0	8	8	
White	31		14. 7	4	7	
Colored	30	(6)	23. 2	4	1	
Boston	240	15. 8	12. 5	28	18	106
Bridgeport	23			2	5	37
Buffalo	147	13. 9	15. 5	14	35	50
Cambridge	23	9. 7	8. 5	1	4	18
Camden	37	14. 5	13. 5	5	8	86
Canton	24	11. 1	15. 6	3	9	71
Chicago [5]	743	12. 5	11. 6	79	77	68
Cincinnati	169	13. 8	15. 7	8	15	50
Cleveland	185	9. 8	10. 0	20	34	53
Columbus	61	10. 9	13. 2	3	0	28
Dallas	55	13. 7	11. 0	10	8	
White	43		10. 4	7	7	
Colored	12	(6)	15. 4	3	1	
Dayton	45	13. 0	14. 1	4	7	66
Denver	67	12. 0	11. 9	4	4	
Des Moines	33	11. 5	13. 9	1	4	17
Detroit	320	12. 5	11. 3	52	56	82
Duluth	25	11. 3	12. 0	1	1	22
El Paso	25	11. 4	17. 7	4	15	
Erie	26			3	5	59
Fall River [5]	34	13. 3	16. 7	5	8	88
Flint	29	10. 6	12. 7	5	8	82
Fort Worth	28	8. 9	11. 5	6	10	
White	24		11. 2	5	8	
Colored	4	(6)	13. 7	1	2	
Grand Rapids	36	11. 8	8. 7	6	4	88
Houston	45			6	1	
White	29			3	0	
Colored	16	(6)		3	1	
Indianapolis	91	12. 7	15. 6	4	9	31
White	77		15. 0	4	6	30
Colored	14	(6)	20. 1	0	3	0

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 65 cities.
[4] Data for 60 cities.
[5] Deaths for week ended Friday, May 27, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended May 28, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, June 2, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended May 28, 1927		Annual death rate per 1,000 corresponding week, 1926	Deaths under 1 year		Infant mortality rate, week ended May 28, 1927
	Total deaths	Death rate		Week ended May 28, 1927	Corresponding week, 1926	
Jersey City	64	10.4	13.1	7	20	52
Kansas City, Kans	25	11.1	9.8	2	5	30
White	20	--------	8.6	1	1	22
Colored	5	(6)	15.3	1	4	152
Kansas City, Mo	118	16.1	14.9	17	7	--------
Knoxville	30	15.3	--------	5	--------	--------
White	18	--------	--------	2	--------	--------
Colored	12	(6)	--------	3	--------	--------
Los Angeles	221	--------	--------	29	20	83
Louisville	71	11.6	15.9	2	12	17
White	53	--------	14.4	2	10	19
Colored	18	(6)	24.4	0	2	0
Lowell	26	12.3	15.6	2	0	39
Lynn	25	12.4	11.5	1	2	26
Memphis	59	17.2	20.3	4	10	--------
White	29	--------	11.9	3	7	--------
Colored	30	(6)	35.6	1	3	--------
Milwaukee	115	11.3	10.2	10	18	89
Minneapolis	93	11.0	13.0	7	16	39
Nashville [5]	49	18.5	14.8	0	4	--------
White	23	--------	8.0	0	3	--------
Colored	21	(6)	32.1	0	1	--------
New Bedford	20	8.7	14.8	5	7	87
New Haven	49	13.8	23.2	3	7	42
New Orleans	176	21.6	19.9	18	14	--------
White	108	--------	15.8	11	7	--------
Colored	68	(6)	31.6	7	7	--------
New York	1,342	11.7	12.0	135	163	56
Bronx Borough	167	9.4	9.3	14	14	45
Brooklyn Borough	468	10.7	10.7	49	63	51
Manhattan Borough	551	15.9	16.3	58	63	68
Queens Borough	118	7.6	8.0	11	17	47
Richmond Borough	35	12.4	16.4	3	6	56
Newark, N. J	95	10.6	11.7	13	17	64
Oakland	46	9.0	8.4	3	3	35
Oklahoma City	27	--------	--------	3	3	--------
Omaha	45	10.7	14.0	2	10	22
Paterson	39	14.1	11.3	4	3	71
Philadelphia	454	11.6	12.0	36	28	48
Pittsburgh	184	14.9	13.3	20	24	70
Portland, Oreg	73	--------	--------	10	0	105
Providence	68	12.6	13.1	5	8	42
Richmond	53	14.4	16.6	3	7	40
White	31	--------	10.9	2	3	40
Colored	22	(6)	30.3	1	4	38
Rochester	87	14.0	12.5	13	7	109
St. Louis	218	13.5	14.8	10	26	--------
St. Paul	62	12.9	10.1	8	6	73
Salt Lake City [5]	27	10.4	11.8	2	3	30
San Antonio	66	16.3	16.3	16	24	--------
San Diego	48	21.8	20.4	1	4	21
San Francisco	149	13.5	13.3	11	10	69
Schenectady	22	12.3	8.4	4	2	119
Seattle	57	--------	--------	4	1	42
Somerville	17	8.7	8.3	2	2	72
Springfield, Mass	27	9.6	11.1	3	4	46
Syracuse	47	12.4	12.4	2	8	26
Tacoma	19	9.3	13.8	0	3	0
Toledo	89	15.3	12.5	13	0	125
Trenton	28	10.7	16.7	2	3	35
Washington, D. C	117	11.3	11.9	10	12	58
White	77	--------	7.8	5	3	42
Colored	40	(6)	23.8	5	9	92
Waterbury	18	--------	--------	3	4	71
Wilmington, Del	22	9.1	12.6	3	5	74
Worcester	67	17.9	17.3	4	7	48
Yonkers	19	8.3	8.1	1	1	23
Youngstown	32	9.9	13.3	3	5	42

[5] Deaths for week ended Friday, May 27, 1927.

[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended June 4, 1927

DIPHTHERIA

	Cases
Arizona	1
Arkansas	2
Colorado	12
Connecticut	26
Idaho	2
Illinois	124
Iowa [1]	14
Kansas	4
Louisiana	11
Maine	1
Maryland [1]	53
Massachusetts	80
Michigan [1]	74
Montana	3
New Jersey	111
New York [2]	89
North Carolina	14
Oregon	7
Pennsylvania	168
Texas	16
Utah [1]	11
Washington	8
West Virginia	12

INFLUENZA

	Cases
Arkansas	7
Connecticut	4
Illinois	34
Kansas	10
Louisiana	13
Maine	3
Maryland [1]	14
Massachusetts	3
Michigan [1]	7
New Jersey	1
Oregon	7
Texas	27
West Virginia	17

MEASLES

	Cases
Arizona	22
Arkansas	72
Colorado	264
Connecticut	44
Idaho	37
Illinois	754
Iowa [1]	124
Kansas	597
Louisiana	99
Maine	36
Maryland [1]	22
Massachusetts	331
Michigan [1]	215
Montana	16
New Jersey	96
New York [2]	944
North Carolina	1,564
Oregon	221
Pennsylvania	791
Texas	125
Utah [1]	26
Vermont	77
Washington	344
West Virginia	165

MENINGOCOCCUS MENINGITIS

	Cases
Idaho	1
Illinois	10
Massachusetts	2
Michigan [1]	3
Montana	1
New Jersey	1
New York [2]	4
Pennsylvania	1
Utah [1]	1
Washington	4

[1] Week ended Friday.

[2] Exclusive of New York City.

POLIOMYELITIS

	Cases
Arizona	4
Illinois	2
Louisiana	2
Massachusetts	3
Pennsylvania	1
Washington	1

SCARLET FEVER

	Cases
Arkansas	3
Colorado	132
Connecticut	68
Illinois	194
Iowa [1]	32
Kansas	43
Louisiana	3
Maine	15
Maryland [1]	34
Massachusetts	310
Michigan [1]	258
Montana	43
New Jersey	240
New York [2]	248
North Carolina	10
Oregon	14
Pennsylvania	432
Texas	4
Utah [1]	13
Vermont	16
Washington	51
West Virginia	26

SMALLPOX

	Cases
Arkansas	13
Colorado	5
Idaho	10
Illinois	23

SMALLPOX—continued

	Cases
Iowa [1]	9
Kansas	29
Louisiana	3
Michigan [1]	31
Montana	8
New York [2]	7
North Carolina	27
Oregon	8
Pennsylvania	1
Texas	40
Utah [1]	4
Virginia	1
Washington	36
West Virginia	26

TYPHOID FEVER

	Cases
Arizona	2
Arkansas	17
Colorado	5
Idaho	1
Illinois	9
Iowa [1]	1
Kansas	2
Louisiana	15
Maine	2
Maryland [1]	11
Massachusetts	4
Michigan [1]	6
Montana	1
New Jersey	5
New York [2]	12
North Carolina	24
Oregon	8
Pennsylvania	27
Texas	24
Washington	4
West Virginia	15

Reports for Week Ended May 28, 1927

DIPHTHERIA

	Cases
District of Columbia	26
North Dakota	[illegible]

INFLUENZA

	Cases
District of Columbia	2

MEASLES

	Cases
District of Columbia	10
North Dakota	30

MENINGOCOCCUS MENINGITIS

	Cases
District of Columbia	1

SCARLET FEVER

	Cases
District of Columbia	15
North Dakota	46

SMALLPOX

	Cases
District of Columbia	1
North Dakota	1

TYPHOID FEVER

	Cases
District of Columbia	1

[1] Week ended Friday.

[2] Exclusive of New York City.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week.

State	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April, 1927										
Mississippi	0	48	2,604	3,594	2,023	685	3	38	23	60
Montana	24	13	19		169		0	287	34	9
North Carolina	1	64			4,754		0	84	183	11
Oregon	6	53	313		1,350		2	148	86	15
Pennsylvania	7	771			3,233		1	2,387	0	87
Virginia	2	96	3,668	48	3,478	24	1	154	143	37
Washington	28	78	64		2,141		2	306	204	16

April, 1927

	Cases
Anthrax:	
Pennsylvania	1
Chicken pox:	
Mississippi	705
Montana	114
North Carolina	498
Oregon	113
Pennsylvania	2,224
Virginia	727
Washington	493
Dengue:	
Mississippi	7
Dysentery:	
Mississippi (amoebic)	58
Mississippi (bacillary)	772
Virginia	60
Washington	1
German measles:	
Montana	2
North Carolina	53
Pennsylvania	570
Washington	1,711
Hookworm disease:	
Mississippi	257
Virginia	3
Impetigo contagiosa:	
Oregon	13
Pennsylvania	25
Washington	1
Lethargic encephalitis:	
Pennsylvania	6
Washington	13
Mumps:	
Mississippi	579
Montana	20
Oregon	82
Pennsylvania	2,281
Washington	517
Ophthalmia neonatorum:	
Mississippi	25
North Carolina	2
Pennsylvania	13
Paratyphoid fever:	
Washington	1
Puerperal septicemia:	
Mississippi	43
Pennsylvania	12
Rabies in animals:	
Mississippi	18
Oregon	2
Washington	1
Rocky Mountain spotted or tick fever:	
Montana	11
Oregon	7
Scabies:	
Oregon	4
Pennsylvania	18
Septic sore throat:	
North Carolina	4
Oregon	9
Tetanus:	
Pennsylvania	1
Trachoma:	
Mississippi	9
Montana	1
Oregon	1
Pennsylvania	2
Trichinosis:	
Pennsylvania	2
Whooping cough:	
Mississippi	2,068
Montana	26
North Carolina	3,087
Oregon	67
Pennsylvania	944
Virginia	1,857
Washington	188

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,800,000. The estimated population of the 93 cities reporting deaths is more than 30,200,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 21, 1927, and May 22, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,592	1,242	
98 cities	1,033	684	832
Measles.			
40 States	12,595	22,608	
98 cities	3,591	8,131	
Poliomyelitis:			
40 States	27	11	
Scarlet fever.			
42 States	4,191	3,973	
98 cities	1,836	1,791	1,095
Smallpox:			
42 States	723	638	
98 cities	149	108	125
Typhoid fever:			
42 States	307	269	
98 cities	59	63	58
Deaths reported			
Influenza and pneumonia:			
93 cities	703	883	
Smallpox:			
93 cities	0	3	
Chicago	0	1	
Los Angeles	0	2	

City reports for week ended May 21, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
NEW ENGLAND									
Maine:									
Portland	75,333	0	1	1	0	0	0	1	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	0	0	0
Manchester	83,097	0	1	0	0	3	0	0	1
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,089	0	1	0	0	0	18	1	0
Massachusetts:									
Boston	779,620	52	46	32	0	0	166	66	18
Fall River	128,993	4	3	0	2	1	3	1	4
Springfield	142,065	18	2	19	1	1	2	3	2
Worcester	190,757	54	3	1	0	0	1	12	2
Rhode Island:									
Pawtucket	69,760	0	0	2	0	0	0	0	0
Providence	267,918	0	9	3	0	0	0	0	3
Connecticut:									
Bridgeport	(1)	1	5	5	1	1	5	1	7
Hartford	160,197	3	6	2	0	2	1	10	5
New Haven	178,927	23	2	1	0	1	1	5	1

[1] No estimate made.